

GW - 1

**MONITORING
REPORTS**

DATE:

1999 - 1998

RECEIVED

SEP 23 1999



111 Road 4990
Bloomfield, New Mexico 87413

505
632.8006

September 16, 1999

Mr. Wayne Price
NMOCD
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

*C-138 OK BY - OCD
NAPLHM REVISIONS
JLW
9/27/99*

Re: Evaporation Pond Sludge
Giant Refining Company – Bloomfield GW-001

*OK BY 2/2000 - OCD
SILVER*

Dear Mr. Price:

Giant Refining Company – Bloomfield submitted a written request on August 18, 1999 for permission to apply evaporation pond sludge directly to the land surface in an area immediately south of the evaporation pond.

Giant hereby withdraws that request. Instead, the pond sludge will be processed through a centrifuge and the solids will be land applied at Giant Mid-Continent's permitted land farm. Analytical data documenting that the pond sludge is non-hazardous was submitted with the August 18 letter. Because the material is non-hazardous, contains no recoverable petroleum hydrocarbon and will be applied to a segregated cell of the land farm, Giant proposes that no additional sampling be required in the segregated cell in which the sludge is applied.

Included with this letter are the appropriate forms needed for approval of this land application.

If you need additional information, please contact me at (505) 632 4168.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company – Bloomfield

Enclosures

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address: Giant Refining Company - Bloomfield 50 County Road 4990 Bloomfield, N.M. 87413	2. Destination Name: Giant Mid-Continent 111 County Road 4990 Bloomfield, N.M. 87413
3. Originating Site (name): Giant Refinery	Location of the Waste (Street address &/or ULSTR): 50 County Road 4990
<i>Attach list of originating sites as appropriate</i>	
4. Source and Description of Waste Process waste water evaporation pond sludge. Sludge was removed from lined evaporation lagoon. Analytical data available.	

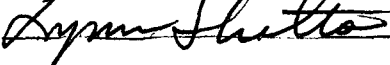
I, Lynn Shelton representative for:
(Print Name)
Giant Refining Company do hereby certify that,
according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July,
1988, regulatory determination, the above described waste is: (Check appropriate classification)

EXEMPT oilfield waste NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For **NON-EXEMPT** waste only the following documentation is attached (check appropriate items):

MSDS Information Other (description):
 RCRA Hazardous Waste Analysis WQCC Analysis
 Chain of Custody

Name (Original Signature): 
Title: Environmental Manager
Date: September 16, 1999

District I - (505) 393-6161
 P. O. Box 1980
 Hobbs, NM 88241-1980
 District II - (505) 748-1283
 311 S. First
 Artesia, NM 88210
 District III - (505) 334-6178
 Rio Brazos Road
 Socorro, NM 87410
 District IV - (505) 827-7131

New Mexico
 Energy Minerals and Natural Resources Department
 Oil Conservation Division
 2040 South Pacheco Street
 Santa Fe, New Mexico 87505
 (505) 827-7131

Form C-138
 Originated 8/6/95
 Submit Original
 Plus 1 Copy
 to appropriate
 District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: <input type="checkbox"/> Non-Exempt: <input checked="" type="checkbox"/> Verbal Approval Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	4. Generator Giant Refining Company
2. Management Facility Destination Giant Mid-Continent	5. Originating Site Bloomfield Refinery
3. Address of Facility Operator 111 County Road 4990 Bloomfield, N.M. 87413	6. Transporter Not Determined
7. Location of Material (Street Address or ULSTR) 50 County 4990 Bloomfield, N.M. 87413	8. State New Mexico
9. <u>Circle One:</u> A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job. B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved. All transporters must certify the wastes delivered are only those consigned for transport.	

BRIEF DESCRIPTION OF MATERIAL:

Process waste water evaporation pond sludge. Analysis available.

Estimated Volume 1500 cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: *Barry Holman* TITLE: MGR. SAGH DATE: 9-17-99
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: BARRY HOLMAN TELEPHONE NO. 505-672-4077

(This space for State Use)

APPROVED BY: _____ TITLE: _____ DATE: _____

APPROVED BY: _____ TITLE: _____ DATE: _____

CERTIFICATE OF WASTE STATUS

1. Generator Name and Address: Giant Refining Company - Bloomfield 50 County Road 4990 Bloomfield, N.M. 87413	2. Destination Name: Giant Mid-Continent 111 County Road 4990 Bloomfield, N.M. 87413
3. Originating Site (name): Giant Refinery	Location of the Waste (Street address &/or ULSTR): 50 County Road 4990
<i>Attach list of originating sites as appropriate</i>	
4. Source and Description of Waste Process waste water evaporation pond sludge. Sludge was removed from lined evaporation lagoon. Analytical data available.	

I, Lynn Shelton representative for:
(Print Name)

Giant Refining Company do hereby certify that, according to the Resource Conservation and Recovery Act (RCRA) and Environmental Protection Agency's July, 1988, regulatory determination, the above described waste is: (Check appropriate classification)

EXEMPT oilfield waste NON-EXEMPT oilfield waste which is non-hazardous by characteristic analysis or by product identification

and that nothing has been added to the exempt or non-exempt non-hazardous waste defined above.

For NON-EXEMPT waste only the following documentation is attached (check appropriate items):

MSDS Information Other (description):
 RCRA Hazardous Waste Analysis WQCC Analysis
 Chain of Custody

Name (Original Signature): Lynn Shelton

Title: Environmental Manager

Date: September 16, 1999

District I - (505) 393-6161
 P. O. Box 1980
 Hobbs, NM 88241-1980
 District II - (505) 748-1283
 311 S. First
 Artesia, NM 88210
 District III - (505) 334-6178
 Rio Brazos Road
 Elmer, NM 87410
 District IV - (505) 827-7131

New Mexico
 Energy Minerals and Natural Resources Department
 Oil Conservation Division
 2040 South Pacheco Street
 Santa Fe, New Mexico 87505
 (505) 827-7131

Form C-138
 Originated 8/8/95

Submit Original
 Plus 1 Copy
 to appropriate
 District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: <input type="checkbox"/> Non-Exempt: <input checked="" type="checkbox"/>	4. Giant Refining Company Generator
Verbal Approval Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	5. Bloomfield Refinery Originating Site
2. Management Facility Destination Giant Mid-Continent	6. Not Determined Transporter
3. Address of Facility Operator 111 County Road 4990 Bloomfield, N.M. 87413	8. State New Mexico
7. Location of Material (Street Address or ULSTR) 50 County 4990 Bloomfield, N.M. 87413	
9. <u>Circle One</u> :	
A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.	
B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.	
All transporters must certify the wastes delivered are only those consigned for transport.	

BRIEF DESCRIPTION OF MATERIAL:

Process waste water evaporation pond sludge. Analysis available.

Estimated Volume 1500 cy Known Volume (to be entered by the operator at the end of the haul) _____ cy

SIGNATURE: Barry Holman TITLE: McR. SAGH DATE: 9-17-99
Waste Management Facility Authorized Agent
 TYPE OR PRINT NAME: BARRY HOLMAN TELEPHONE NO. 505-632-4077

(This space for State Use)

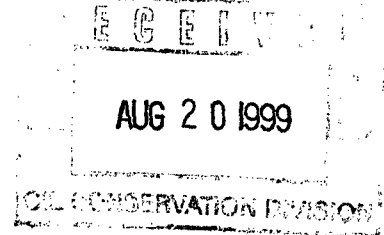
APPROVED BY: _____ TITLE: _____ DATE: _____

APPROVED BY: _____ TITLE: _____ DATE: _____



111 Road 4990
Bloomfield, New Mexico 87413

505
632.8006



August 18, 1999

Mr. Wayne Price
NMOCD
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Evaporation Pond Sludge
Giant Refining Company – Bloomfield GW-001

Dear Mr. Price:

Giant Refining Company – Bloomfield is planning to clean the south process wastewater evaporation lagoon. The sludge on the bottom will be removed and disposed of. Cleaning the lagoon will control odor from the lagoon and will allow inspection of the top HDPE liner for structural integrity.

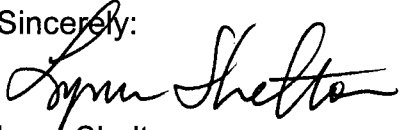
In order to protect the liner from mechanical damage, Giant plans to use water from the north evaporation lagoon to blast the sludge in the south lagoon. The resultant slurry (sludge and water) will be vacuumed into a truck.

Giant requests permission to dispose of the sludge on site on Giant's property immediately south of the south lagoon. Enclosed is a copy of analytical data that was performed on the sludge including TCLP and WQCC analytical parameters. This shows the sludge to be non-hazardous material. There were a few insignificant hits on hydrocarbons and the inorganic data shows that the metals levels are consistent with background soil.

Disposing of the sludge on-site will offer significant savings in transportation and handling of the sludge. The sludge will be applied in a manner to prevent pooling or ponding. Giant sees no adverse effect on the environment. Although the sludge is black when it is removed, it oxidizes quickly to the color of the native soil.

Giant appreciates your consideration of this request. If you need additional information, please contact me at (505) 632 4168.

Sincerely:

A handwritten signature in cursive script that reads "Lynn Shelton".

Lynn Shelton
Environmental Manager
Giant Refining Company – Bloomfield

Enclosure

cc: Denny Foust, NMOCD, Aztec



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944

E-Mail: lab@traceanalysis.com

**ANALYTICAL RESULTS FOR
 GIANT REFINING CO.-BLOOMFIELD**

Attention: Lynn Shelton
 111 County Road
 Bloomfield, NM 87413

July 7, 1999
 Receiving Date: 6/3/99
 Sample Type: Sludge
 Project No: N/A
 Project Location: N/A

Prep Date: 7/1/99
 Analysis Date: 7/1/99
 Sampling Date: 6/2/99
 Sample Condition: Intact & Cool
 Sample Received by: AD
 Project Name: N/A

FIELD CODE: S. POND SLUDGE

TA #: T125841/992603

	Reporting Limit (ug/kg)	Concentration (ug/kg)	QC	RPD	EA	IA
8260 Compounds						
Dichlorodifluoromethane	25	ND				
Chloromethane	25	ND				
Vinyl chloride	50	ND	107			107
Bromomethane	125	ND				
Chloroethane	25	ND				
Trichlorofluoromethane	25	ND				
1,1-Dichloroethene	25	ND	104	6	90	104
Methylene chloride	125	ND				
trans-1,2-Dichloroethene	25	ND				
1,1-Dichloroethane	25	ND				
cis-1,2-Dichloroethene	25	ND				
Chloroform	25	ND	102			102
2,2-Dichloropropane	25	ND				
Bromochloromethane	25	ND				
1,2-Dichloroethane	25	ND				
1,1,1-Trichloroethane	25	ND				
Carbon Tetrachloride	25	ND				
1,1-Dichloropropene	25	ND				
Benzene	25	54		1	112	
1,2-Dichloropropane	25	ND	100			100
Trichloroethene	25	ND		4	114	
Dibromomethane	25	ND				
Bromodichloromethane	25	ND				
cis-1,3-Dichloropropene	25	ND				
trans-1,3-Dichloropropene	25	ND				
Toluene	25	400	101	3	112	101
1,1,2-Trichloroethane	25	ND				
1,3-Dichloropropane	25	ND				
MTBE	25	ND				

GIANT REFINING CO.-BLOOMFIELD

GIANT REFINING CO.-BLOOMFIELD

Attention: Lynn Shelton

FIELD CODE: S. POND SLUDGE

TA #: T125841/992603

8260 Compounds	Reporting Limit (ug/kg)	Concentration (ug/kg)	QC	RPD	EA	IA
Dibromochloromethane	25	ND				
1,2-Dibromoethane	25	ND				
Tetrachloroethene	25	ND				
Chlorobenzene	25	ND	100	1	109	100
1,1,1,2-Tertachloroethane	25	ND				
Ethylbenzene	25	110	102			102
m & p-Xylene	25	630				
Bromoform	25	ND				
Styrene	25	ND				
o-Xylene	25	260				
1,1,2,2-Tetrachloroethane	25	ND				
1,2,3-Trichloropropane	25	ND				
Isopropylbenzene	25	ND				
Bromobenzene	25	ND				
2-Chlorotoluene	25	ND				
n-Propylbenzene	25	ND				
4-Chlorotoluene	25	ND				
1,3,5-Trimethylbenzene	25	130				
tert-Butylbenzene	25	ND				
1,2,4-Trimethylbenzene	25	380				
1,4-Dichlorobenzene	50	ND				
sec-Butylbenzene	25	ND				
1,3-Dichlorobenzene	50	ND				
4-Isopropyltoluene	25	ND				
1,2-Dichlorobenzene	50	ND				
n-Butylbenzene	25	ND				
1,2-Dibromo-3-chloropropane	125	ND				
1,2,3-Trichlorobenzene	125	ND				
Naphthalene	25	180				
1,2,4-Trichlorobenzene	125	ND				
Hexachlorobutadiene	125	ND				

% Recovery

Dibromofluoromethane	103
Toluene-d8	100
4-Bromofluorobenzene	100

ND = Not Detected

Methods: EPA SW 846-5035, 8260B

CHEMIST: JG



Director, Dr. Blair Leftwich

7-7-99

Date



ANALYTICAL REPORT

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
 25 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•3443
 E-Mail: lab@traceanalysis.com

CLIENT GIANT REFINING CO. 111 COUNTY RD 4990 BLOOMFIELD, NM 87413

SAMPLE NO.: 992603
 INVOICE NO.: 22104219
 REPORT DATE: 06-29-99
 REVIEWED BY: *[Signature]*
 PAGE : 1 OF 2

CLIENT SAMPLE ID : S. POND SLUDGE
 SAMPLE TYPE: sludge
 SAMPLED BY: L.S.
 SUBMITTED BY: Lynn Shelton
 SAMPLE SOURCE: S. POND SLUDGE

AUTHORIZED BY : L. Shelton
 CLIENT P.O. : --
 SAMPLE DATE: 06-02-99
 SUBMITTAL DATE : 06-03-99
 EXTRACTION DATE: --

REMARKS -

Matrix spike and matrix spike duplicate were out of acceptance criteria range possibly due non-homogeneity of the sample for the following parameters: Lead, Cadmium, Selenium, Silver, and Copper. Matrix Spike Duplicate was out of acceptance criteria for Zinc and Manganese.

METALS SOLID-ICP

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Total Silver	<1.3	mg/Kg	1.30	06-28-99	3111B	N. Munir
Total Arsenic	<5.00	mg/Kg	5.00	06-11-99	6010B	N. Munir
Total Barium	410	mg/Kg	5.00	06-11-99	6010B	N. Munir
Total Cadmium	<5.00	mg/Kg	5.00	06-11-99	6010B	N. Munir
Total Chromium	4.5	mg/Kg	5.00	06-08-99	3111B	N. Munir
Total Lead	6.5	mg/Kg	5.00	06-11-99	6010B	N. Munir
Total Selenium	<5.00	mg/Kg	5.00	06-11-99	6010B	N. Munir

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. NOTWITHSTANDING, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

[Signature]
 MANAGING DIRECTOR

(1) Copy to Client



ANALYTICAL REPORT

FAX 806•794•1298

806•794•1296

800•378•1296

Lubbock, Texas 79424

6701 Aberdeen Avenue, Suite 9

FAX 915•585•3443

915•585•3443

888•588•3443

El Paso, Texas 79972

4725 Ripley Avenue, Suite A

SAMPLE NO. : 992603

INVOICE NO. : 22104219

REPORT DATE: 06-29-99

REVIEWED BY: ✓

CLIENT GIANT REFINING CO.

REPORT DATE: 06-29-99

INVOICE NO. : 22104219

REPORT DATE: 06-29-99

REVIEWED BY: ✓

111 COUNTY RD 4990

REPORT DATE: 06-29-99

INVOICE NO. : 22104219

REPORT DATE: 06-29-99

REVIEWED BY: ✓

BLOOMFIELD, NM 87413

REPORT DATE: 06-29-99

INVOICE NO. : 22104219

REPORT DATE: 06-29-99

REVIEWED BY: ✓

E-Mail: lab@traceanalysis.com

REPORT DATE: 06-29-99

INVOICE NO. : 22104219

REPORT DATE: 06-29-99

REVIEWED BY: ✓

PAGE : 2 OF 2

D A T A T A B L E

(Continue)

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Total Mercury	6.8	mg/Kg	0.50	06-10-99	SW-7470	N. Munir
Total Aluminum	790	mg/Kg	25.0	06-21-99	6010B	N. Munir
Total Boron	<5.00	mg-Kg	5.00	06-18-99	6010B	N. Munir
Total Cobalt	<5.00	mg/Kg	5.00	06-18-99	6010B	N. Munir
Total Copper	<5.00	mg/Kg	5.00	06-18-99	6010B	N. Munir
Total Iron	6800	mg/Kg	2.5	06-21-99	6010B	N. Munir
Total Manganese	48.	mg/Kg	5.00	06-17-99	6010B	N. Munir
Total Molybdenum	<5.00	mg/Kg	5.00	06-18-99	6010B	N. Munir
Total Nickel	<5.00	mg/Kg	5.00	06-18-99	6010B	N. Munir
Total Zinc	100	mg/Kg	5.00	06-17-99	6010B	N. Munir

ANALYTICAL REPORT

TRACE ANALYSIS, INC.

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 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•3443
 CLIENT GAIN T REFINING CO. 111 COUNTY ROAD 4990 BLOOMFIELD, NM 87413
 E-Mail: lab@traceanalysis.com

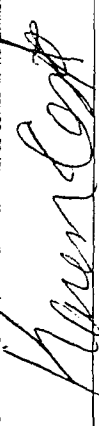
CLIENT SAMPLE ID : S. POND SLUDGE
 SAMPLE TYPE: sludge
 SAMPLED BY: L.S.
 SUBMITTED BY: Lynn Shelton
 SAMPLE SOURCE: S. POND SLUDGE

TCLP Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Arsenic (TCLP)	<0.50	mg/L	0.50	06-15-99	SW 7060A	N. Munir
Barium (TCLP)	<0.50	mg/L	0.50	06-15-99	SW 3010A/7080A	N. Munir
Cadmium (TCLP)	<0.50	mg/L	0.50	06-15-99	SW 3010A/7130	N. Munir
Chromium (TCLP)	<0.50	mg/L	0.50	06-08-99	SW 3010A/7190	N. Munir
Lead (TCLP)	<0.50	mg/L	0.50	06-15-99	SW 3010A/7420	N. Munir
Mercury (TCLP)	<0.010	mg/L	0.010	06-10-99	SW 7470A	N. Munir
Selenium (TCLP)	<0.50	mg/L	0.50	06-15-99	SW 7740	N. Munir
Silver (TCLP)	<0.50	mg/L	0.50	06-08-99	SW 7760A	N. Munir

(1) Copy to Client

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.




TRACE ANALYSIS, INC.

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 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
 E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
 GIANT REFINING CO. BLOOMFIELD
 Attention: Lynn Shelton
 111 County Road 4990
 Bloomfield, NM 87413

June 14, 1999
 Receiving Date: 06/03/99
 Sample Type: Sludge
 Project No: N/A
 Project Location: N/A

Sampling Date: 06/02/99
 Sample Condition: I & C
 Sample Received by: VW
 Project Name: N/A

TA#	FIELD CODE	TCLP Cr (mg/L)
EPA LIMIT =		5.0
T125841/992603	S. Pond Sludge	<0.50
ICV		1.03
CCV		0.99
REPORTING LIMIT		0.50
RPD		2
% Extraction Accuracy		99
% Instrument Accuracy		101
EXTRACTION DATE		06/04/99
ANALYSIS DATE		06/07/99

QA/QC

METHODS: EPA 846-1311, 6010B
 CHEMIST: RR
 TCLP Cr SPIKE: 10 mg/L
 TCLP Cr CV: 1.0 mg/L

Director, Dr. Blair Leftwich

6-14-99

DATE



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
 E-Mail: lab@traceanalysis.com

**ANALYTICAL RESULTS FOR
 GIANT REFINING CO. BLOOMFIELD**
 Attention: Lynn Shelton
 111 County Road 4990
 Bloomfield, NM 87413

June 16, 1999
 Receiving Date: 06/03/99
 Sample Type: Sludge
 Project No:
 Project Location:

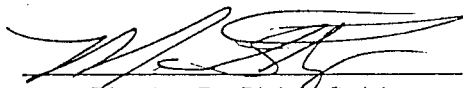
Extraction Date: 06/07/99
 Analysis Date: 06/15/99
 Sampling Date: 06/02/99
 Sample Condition: I & C
 Sample Received by: VW
 Project Name:

TCLP VOLATILES (mg/L)	EPA Limit	Reporting Limit	T126322/992603 S. Pond Sludge	QC	RPD	%EA	%IA
Vinyl chloride	0.20	0.05	ND	112	6	116	112
1,1-Dichloroethene	0.70	0.05	ND	112	9	116	112
Methyl Ethyl Ketone	200.0	0.5	ND	85	12	86	85
Chloroform	6.00	0.05	ND	86	10	103	86
1,2-Dichloroethane	0.50	0.05	ND	81	12	93	81
Benzene	0.50	0.05	ND	96	9	112	96
Carbon Tetrachloride	0.50	0.05	ND	104	6	119	104
Trichloroethene	0.50	0.05	ND	96	7	114	96
Tetrachloroethene	0.70	0.05	ND	99	8	124	99
Chlorobenzene	100.00	0.05	ND	98	8	108	98
1,4-Dichlorobenzene	7.50	0.05	ND	94	8	108	94

SURROGATES	% Recovery
Dibromofluoromethane	91
Toluene-d8	96
4-Bromofluorobenzene	93

ND = Not Detected

METHODS: EPA SW 846-1311, 8260.
 CHEMIST: DG


 Director, Dr. Blair Leftwich


 Date

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
 1735 Ripley Ave., Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 585•4944
CLIENT GIANT REFINING COMPANY
 111 COUNTY ROAD 4990
 BLOOMFIELD, NM 87413
 E-Mail: lab@traceanalysis.com

SAMPLE NO.: 992603
INVOICE NO.: 22104219
REPORT DATE: 06-22-99
REVIEWED BY: *[Signature]*
PAGE : 1 OF 2

CLIENT SAMPLE ID : S. POND SLUDGE SAMPLE TYPE : sludge SAMPLED BY : L.S. SUBMITTED BY : Lynn Shelton SAMPLE SOURCE ...: S. POND SLUDGE ANALYST : S. Ortiz	AUTHORIZED BY : L. Shelton CLIENT P.O. : -- SAMPLE DATE ...: 06-02-99 SUBMITTAL DATE : 06-03-99 EXTRACTION DATE: 06-15-99 ANALYSIS DATE .: 06-16-99
--	--

REMARKS -

Pyridine is out of acceptance criteria in laboratory control sample. Results are acceptable in the laboratory control sample duplicate and the matrix spikes.
 Hexachlorobenzene Relative Percent Difference between Laboratory Control Samples is out of acceptance criteria.
 Detection limits raised due to interference.

TCLP Semi - Volatiles by EPA 8270C

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
Pyridine	<0.25	mg/L	0.25
1,4-Dichlorobenzene	<0.25	mg/L	0.25
2-Methylphenol	<0.25	mg/L	0.25
4-Methylphenol	<0.25	mg/L	0.25
Hexachloroethane	<0.25	mg/L	0.25
Nitrobenzene	<0.25	mg/L	0.25
Hexachlorobutadiene	<0.25	mg/L	0.25
2,4,6-Trichlorophenol	<0.25	mg/L	0.25
2,4,5-Trichlorophenol	<0.25	mg/L	0.25
2,4-Dinitrotoluene	<0.25	mg/L	0.25
Hexachlorobenzene	<0.25	mg/L	0.25
Pentachlorophenol	<0.25	mg/L	0.25

(1) Copy to Client

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

[Signature]
 MANAGING DIRECTOR


TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298

4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944

CLIENT GIANT REFINING COMPANY
 111 COUNTY ROAD 4990
 BLOOMFIELD, NM 87413

E-Mail: lab@traceanalysis.com

SAMPLE NO.: 992603
 INVOICE NO.: 22104219
 REPORT DATE: 06-22-99
 REVIEWED BY: 
 PAGE : 2 OF 2

D A T A T A B L E

(Cont.)

Surrogate Information -

	<u>Percent Recovery</u>	<u>Range</u>
2-Flourophanol	33.1	11-114
Phenol-D6	25.6	13-130
Nitrobenzene-d5	61.0	1-198
2-Flurobiphenyl	71.2	19-152
2,4,6-Tribromophenol	93.4	1-179
Terphenyl-d14	154.0	15-195

TRACE ANALYSIS, INC.

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CLIENT GAINI REFINING CO.

4725 Biplay Avenue, Suite A

El Paso, Texas 79922 888•588•3443

915•585•3443 FAX 915•585•4944

111 COUNTY RD. 4990
BLOOMFIELD, NM 87413

E-Mail: lab@traceanalysis.com

SAMPLE NO.: 992603
INVOICE NO.: 22104219
REPORT DATE: 06-22-99
REVIEWED BY:
PAGE : 1 OF 2CLIENT SAMPLE ID : S. POND SLUDGE
SAMPLE TYPE: sludge
SAMPLED BY: L.S.
SUBMITTED BY: Lynn Shelton
SAMPLE SOURCE ...: S. POND SLUDGE
ANALYST: S. OrtizAUTHORIZED BY : L. Shelton
CLIENT P.O. : --
SAMPLE DATE ...: 06-02-99
SUBMITTAL DATE : 06-03-99
EXTRACTION DATE: 06-14-99
ANALYSIS DATE .: 06-15-99

REMARKS -

Detection limits raised due to sample dilution.

PAH - Soil by 8270C

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Naphthalene	<6.0	mg/Kg	6.0
Acenaphthylene	<6.0	mg/Kg	6.0
Acenaphthene	<6.0	mg/Kg	6.0
Fluorene	<6.0	mg/Kg	6.0
Anthracene	<6.0	mg/Kg	6.0
Phenanthrene	<6.0	mg/Kg	6.0
Fluoranthene	<6.0	mg/Kg	6.0
Pyrene	<6.0	mg/Kg	6.0
Benz[a]anthracene	<6.0	mg/Kg	6.0
Chrysene	<6.0	mg/Kg	6.0
Benzo[b&k]fluoranthene	<6.0	mg/Kg	6.0
Benzo[a]pyrene	<6.0	mg/Kg	6.0
Indeno[1,2,3-cd]pyrene	<6.0	mg/Kg	6.0
Dibenz[a,h]anthracene	<6.0	mg/Kg	6.0
Benzo[g,h,i]perylene	<6.0	mg/Kg	6.0

ANALYTICAL RESULT(S) REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

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111 COUNTY RD. 4990
BLOOMFIELD, NM 87413

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E-Mail: lab@traceanalysis.com

915•585•3443 SAMPLE NO.: 992603
INVOICE NO.: 22104219
REPORT DATE: 06-22-99
REVIEWED BY: ✓
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Surrogate Information -

	<u>Percent Recovery</u>	<u>Range</u>
Phenol-d5	61.4	13-130
2-Fluorobiphenyl	88.1	19-152
2,4,6 Tribromophenol	90.3	1-179
2-Fluorophenol	52.4	11-114
Terphenyl-d14	100.0	15-195
Nitrobenzene-d5	47.6	1-198

TRACE ANALYSIS, INC.

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 El Paso, Texas 79922 888-588-3443 915-585-3443 FAX 915-585-3443
 E-Mail: lab@traceanalysis.com

CLIENT GIANT REFINING
 111 COUNTY ROAD 4990
 BLOOMFIELD, NM 87413

CLIENT SAMPLE ID : S. POND SLUDGE
 SAMPLE TYPE: sludge
 SAMPLED BY: L.S.
 SUBMITTED BY: Lynn Shelton
 SAMPLE SOURCE ...: S. POND SLUDGE

AUTHORIZED BY : D. Overhoff
 CLIENT P.O. : --
 SAMPLE DATE ...: 06-02-99
 SUBMITTAL DATE : 06-03-99
 EXTRACTION DATE: --

INVOICE NO. : 992603
 REPORT DATE: 22104219
 REVIEWED BY: *[Signature]*
 PAGE : 1 OF 1

REMARKS -

Detection limit raised for Sulfate due to interference.
 Fluoride Matrix Spike level below reporting limit. Matrix Spike
 data not valid.

Inorganic Non-Metals-Solids
 Modified Methods Based on Water Extracts

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Nitrate Nitrogen	800	mg/Kg	10.	06-04-99	EPA-300.0	A. Myers
Sulfate	520	mg/Kg	110	06-04-99	EPA-300.0	A. Myers
Chloride	1100	mg/Kg	50.	06-04-99	EPA-300.0	A. Myers
Fluoride	<20.	mg/Kg	20.	06-04-99	EPA-300.0	A. Myers
pH	8.6	S.U.		06-07-99	SW-9045C	A. Myers
Temp, C: at time of pH	20.9			06-07-99		A. Myers

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S)
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 E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
 GIANT REFINING CO. BLOOMFIELD
 Attention: Lynn Shelton
 111 County Road 4990
 Bloomfield, NM 87413

June 14, 1999
 Receiving Date: 06/03/99
 Sample Type: Sludge
 Project No: N/A
 Project Location: N/A

Sampling Date: 06/02/99
 Sample Condition: I & C
 Sample Received by: VW
 Project Name: N/A

TA#	FIELD CODE	CYANIDE (mg/L)	PHENOLICS (mg/L)
T125841/992603	S. Pond Sludge	<0.025	0.549
ICV		0.126	0.835
CCV		0.121	0.850
REPORTING LIMIT		0.025	0.002
RPD		1*	8
% Extraction Accuracy		103*	116
% Instrument Accuracy		105	104


QA/QC

*Matrix spikes failed so blank spikes were used for RPD & %EA.

PREP DATE 06/09/99 06/10/99
 ANALYSIS DATE 06/09/99 06/10/99

METHODS: EPA SM 4500 CN-C,E,
 CHEMIST: MD
 CYANIDE SPIKE: 3.0 mg/L CYANIDE
 PHENOLICS SPIKE: 0.8 mg/L PHENOLICS

CYANIDE CV: 0.120 mg/L CYANIDE
 PHENOLICS CV: 0.8 mg/L PHENOLICS


 Director, Dr. Blair Leftwich

6-14-99
 Date



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9
4725 Ripley Avenue, Suite A

Lubbock, Texas 79424
El Paso, Texas 79922

800•378•1296
888•588•3443

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FAX 915•585•4944

E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
GIANT REFINING CO. BLOOMFIELD
Attention: Lynn Shelton
111 County Road 4990
Bloomfield, NM 87413

June 14, 1999
Receiving Date: 06/03/99
Sample Type: Sludge
Project No: N/A
Project Location: N/A

Sampling Date: 06/02/99
Sample Condition: I & C
Sample Received by: VW
Project Name: N/A

TA#	FIELD CODE	TOTAL Cr (mg/kg)
T125841/992603	S. Pond Sludge	4.8
ICV		1.04
CCV		1.04
REPORTING LIMIT		2.0
RPD		1
% Extraction Accuracy		103
% Instrument Accuracy		104
EXTRACTION DATE		06/09/99
ANALYSIS DATE		06/10/99

METHODS: EPA 846-1311, 6010B
CHEMIST: RR
TOTAL Cr SPIKE: 200 mg/kg
TOTAL Cr CV: 1.0 mg/L

Director, Dr. Blair Leftwich

6-14-99

DATE



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

August 17, 1999

Mr. Lynn Shelton
Giant Refining Company
#89 County Rd. 4990
Bloomfield, New Mexico 87413

**RE: GROUND WATER SAMPLE ANALYSES
GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO**

Dear Mr. Shelton:

Enclosed you will find copies of the analytical results of the ground water quality samples from the Giant Refining Company Bloomfield Refinery (Giant) that the New Mexico Oil Conservation Division (OCD) split with Giant on April 14-15, 1999. Please include a table and discussion of these OCD results in the future site investigation reports.

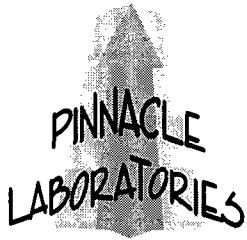
If you have any questions or comments, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

enclosure

xc w/enclosure: Denny Foust, OCD Aztec District Office
Randall T. Hicks, R.T. Hicks Consulting, Ltd.



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **904067**
May 27, 1999

NMOCD
2040 S. PACHECO
SANTA FE, NM 87505

Project Name GIANT BLOOMFIELD REFINERY
Project Number (none)

Attention: BILL OLSON

On 4/15/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Due to laboratory error, all samples for EPA method 8260 were performed outside of EPA holding time. We apologize for any inconvenience this may have caused. There will be no charge for this analysis.

EPA methods 150.1 and 8260 were performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

Silicon was analyzed by ATEL, Marion, OH.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

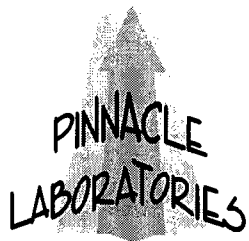
If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

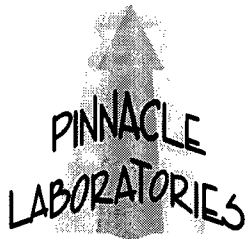


2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT : NMOCD
PROJECT # : (none)
PROJECT NAME : GIANT BLOOMFIELD REFINERY

PINNACLE ID : 904067
DATE RECEIVED : 4/15/99
REPORT DATE : 5/27/99

PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	9904141400 (MW-4)	AQUEOUS	4/14/99
02	9904141515 (RW-14)	AQUEOUS	4/14/99
03	9904141530 (RW-15)	AQUEOUS	4/14/99
04	9904141615 (RW-17)	AQUEOUS	4/14/99
05	9904141710 (MW-28)	AQUEOUS	4/14/99
06	9904150900 (MW-23)	AQUEOUS	4/15/99
07	9904151000 (MW-9)	AQUEOUS	4/15/99
08	TRIP BLANK	AQUEOUS	4/13/99



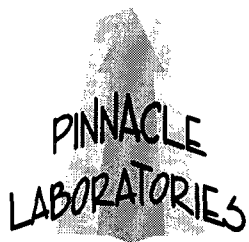
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 Albuquerque, New Mexico 87107
 Phone (505) 344-3777
 Fax (505) 344-4413

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-01	9904141400 (MW 4)	AQUEOUS	4/14/99	N/A	05/11/99	20
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 20	ug/L
Chloromethane	1.0	< 20	ug/L
Vinyl Chloride	1.0	< 20	ug/L
Bromomethane	1.0	< 20	ug/L
Chloroethane	1.0	< 20	ug/L
Trichlorofluoromethane	1.0	< 20	ug/L
Acetone	10	< 200	ug/L
Acrolein	5.0	< 100	ug/L
1,1-Dichloroethene	1.0	< 20	ug/L
Iodomethane	1.0	< 20	ug/L
Methylene Chloride	1.0	< 20	ug/L
Acrylonitrile	5.0	< 100	ug/L
cis-1,2-Dichloroethene	1.0	< 20	ug/L
Methyl-t-butyl Ether	1.0	< 20	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 20	ug/L
1,1-Dichloroethane	1.0	< 20	ug/L
trans-1,2-Dichloroethene	1.0	< 20	ug/L
2-Butanone	10	< 200	ug/L
Carbon Disulfide	1.0	< 20	ug/L
Bromochloromethane	1.0	< 20	ug/L
Chloroform	1.0	< 20	ug/L
2,2-Dichloropropane	1.0	< 20	ug/L
1,2-Dichloroethane	1.0	< 20	ug/L
Vinyl Acetate	1.0	< 20	ug/L
1,1,1-Trichloroethane	1.0	< 20	ug/L
1,1-Dichloropropene	1.0	< 20	ug/L
Carbon Tetrachloride	1.0	< 20	ug/L
Benzene	1.0	9400(D1000)	ug/L
1,2-Dichloropropane	1.0	< 20	ug/L
Trichloroethene	1.0	< 20	ug/L
Bromodichloromethane	1.0	< 20	ug/L
2-Chloroethyl Vinyl Ether	10	< 200	ug/L
cis-1,3-Dichloropropene	1.0	< 20	ug/L
trans-1,3-Dichloropropene	1.0	< 20	ug/L
1,1,2-Trichloroethane	1.0	< 20	ug/L
1,3-Dichloropropane	1.0	< 20	ug/L
Dibromomethane	1.0	< 20	ug/L
Toluene	1.0	< 20	ug/L
1,2-Dibromoethane	1.0	< 20	ug/L
4-Methyl-2-Pentanone	10	< 200	ug/L
2-Hexanone	10	< 200	ug/L
Dibromochloromethane	1.0	< 20	ug/L
Tetrachloroethene	1.0	< 20	ug/L
Chlorobenzene	1.0	< 20	ug/L
Ethylbenzene	1.0	590	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 20	ug/L
m&p Xylenes	1.0	390	ug/L
o-Xylene	1.0	29	ug/L



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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD Pinnacle I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-01	9904141400 (MW 4)	AQUEOUS	4/14/99	N/A	05/11/99	20

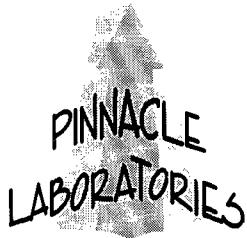
PARAMETER	DET. LIMIT		UNITS
Styrene	1.0	< 20	ug/L
Bromoform	1.0	< 20	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 20	ug/L
1,2,3-Trichloropropane	1.0	< 20	ug/L
Isopropyl Benzene	1.0	44	ug/L
Bromobenzene	1.0	< 20	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 20	ug/L
n-Propylbenzene	1.0	39	ug/L
2-Chlorotoluene	1.0	< 20	ug/L
4-Chlorotoluene	1.0	< 20	ug/L
1,3,5-Trimethylbenzene	1.0	56	ug/L
tert-Butylbenzene	1.0	< 20	ug/L
1,2,4-Trimethylbenzene	1.0	430	ug/L
sec-Butylbenzene	1.0	< 20	ug/L
1,3-Dichlorobenzene	1.0	< 20	ug/L
1,4-Dichlorobenzene	1.0	< 20	ug/L
p-Isopropyltoluene	1.0	< 20	ug/L
1,2-Dichlorobenzene	1.0	< 20	ug/L
n-Butylbenzene	1.0	< 20	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 20	ug/L
1,2,4-Trichlorobenzene	1.0	< 20	ug/L
Naphthalene	1.0	53	ug/L
Hexachlorobutadiene	1.0	< 20	ug/L
1,2,3-Trichlorobenzene	1.0	< 20	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	N/A *
	(80 - 120)
Toluene-d8	105
	(88 - 110)
Bromofluorobenzene	97
	(86 - 115)

(D1000) = SAMPLE ANALYZED AT 1000X DILUTION FOR THIS PARAMETER.

* = SURROGATE RECOVERY NOT OBTAINABLE DUE TO MATRIX INTERFERENCE.



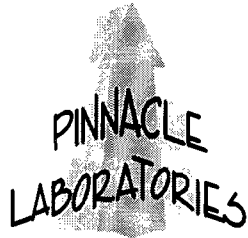
2709-D Pan American Freeway NE
 Albuquerque, New Mexico 87107
 Phone (505) 344-3777
 Fax (505) 344-4413

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-02	9904141515 (RW 14)	AQUEOUS	4/14/99	N/A	05/11/99	40
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 40	ug/L
Chloromethane	1.0	< 40	ug/L
Vinyl Chloride	1.0	< 40	ug/L
Bromomethane	1.0	< 40	ug/L
Chloroethane	1.0	< 40	ug/L
Trichlorofluoromethane	1.0	< 40	ug/L
Acetone	10	< 400	ug/L
Acrolein	5.0	< 200	ug/L
1,1-Dichloroethene	1.0	< 40	ug/L
Iodomethane	1.0	< 40	ug/L
Methylene Chloride	1.0	< 40	ug/L
Acrylonitrile	5.0	< 200	ug/L
cis-1,2-Dichloroethene	1.0	< 40	ug/L
Methyl-t-butyl Ether	1.0	68	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 40	ug/L
1,1-Dichloroethane	1.0	< 40	ug/L
trans-1,2-Dichloroethene	1.0	< 40	ug/L
2-Butanone	10	< 400	ug/L
Carbon Disulfide	1.0	< 40	ug/L
Bromochloromethane	1.0	< 40	ug/L
Chloroform	1.0	< 40	ug/L
2,2-Dichloropropane	1.0	< 40	ug/L
1,2-Dichloroethane	1.0	< 40	ug/L
Vinyl Acetate	1.0	< 40	ug/L
1,1,1-Trichloroethane	1.0	< 40	ug/L
1,1-Dichloropropene	1.0	< 40	ug/L
Carbon Tetrachloride	1.0	< 40	ug/L
Benzene	1.0	4200	ug/L
1,2-Dichloropropane	1.0	< 40	ug/L
Trichloroethene	1.0	< 40	ug/L
Bromodichloromethane	1.0	< 40	ug/L
2-Chloroethyl Vinyl Ether	10	< 400	ug/L
cis-1,3-Dichloropropene	1.0	< 40	ug/L
trans-1,3-Dichloropropene	1.0	< 40	ug/L
1,1,2-Trichloroethane	1.0	< 40	ug/L
1,3-Dichloropropane	1.0	< 40	ug/L
Dibromomethane	1.0	< 40	ug/L
Toluene	1.0	21000(D1000)	ug/L
1,2-Dibromoethane	1.0	< 40	ug/L
4-Methyl-2-Pentanone	10	< 400	ug/L
2-Hexanone	10	< 400	ug/L
Dibromochloromethane	1.0	< 40	ug/L
Tetrachloroethene	1.0	< 40	ug/L
Chlorobenzene	1.0	< 40	ug/L
Ethylbenzene	1.0	3300	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 40	ug/L
m&p Xylenes	1.0	14000(D1000)	ug/L
o-Xylene	1.0	5400	ug/L



2709-D Pan American Freeway NE
 Albuquerque, New Mexico 87107
 Phone (505) 344-3777
 Fax (505) 344-4413

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

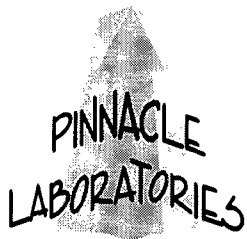
SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-02	9904141515 (RW 14)	AQUEOUS	4/14/99	N/A	05/11/99	40

PARAMETER	DET. LIMIT		UNITS
Styrene	1.0	< 40	ug/L
Bromoform	1.0	< 40	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 40	ug/L
1,2,3-Trichloropropane	1.0	< 40	ug/L
Isopropyl Benzene	1.0	92	ug/L
Bromobenzene	1.0	< 40	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 40	ug/L
n-Propylbenzene	1.0	330	ug/L
2-Chlorotoluene	1.0	< 40	ug/L
4-Chlorotoluene	1.0	< 40	ug/L
1,3,5-Trimethylbenzene	1.0	690	ug/L
tert-Butylbenzene	1.0	< 40	ug/L
1,2,4-Trimethylbenzene	1.0	2400	ug/L
sec-Butylbenzene	1.0	< 40	ug/L
1,3-Dichlorobenzene	1.0	< 40	ug/L
1,4-Dichlorobenzene	1.0	< 40	ug/L
p-Isopropyltoluene	1.0	< 40	ug/L
1,2-Dichlorobenzene	1.0	< 40	ug/L
n-Butylbenzene	1.0	< 40	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 40	ug/L
1,2,4-Trichlorobenzene	1.0	< 40	ug/L
Naphthalene	1.0	590	ug/L
Hexachlorobutadiene	1.0	< 40	ug/L
1,2,3-Trichlorobenzene	1.0	< 40	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	99 (80 - 120)
Toluene-d8	108 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

(D1000) = SAMPLE ANALYZED AT 1000X DILUTION FOR THESE PARAMETERS.
 DILUTION ANALYZED ON 5/12/99.



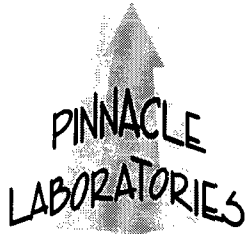
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 Phone (505) 344-3777
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-03	9904141530 (RW 15)	AQUEOUS	4/14/99	N/A	05/11/99	50
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 50	ug/L
Chloromethane	1.0	< 50	ug/L
Vinyl Chloride	1.0	< 50	ug/L
Bromomethane	1.0	< 50	ug/L
Chloroethane	1.0	< 50	ug/L
Trichlorofluoromethane	1.0	< 50	ug/L
Acetone	10	< 500	ug/L
Acrolein	5.0	< 250	ug/L
1,1-Dichloroethene	1.0	< 50	ug/L
Iodomethane	1.0	< 50	ug/L
Methylene Chloride	1.0	< 50	ug/L
Acrylonitrile	5.0	< 250	ug/L
cis-1,2-Dichloroethene	1.0	< 50	ug/L
Methyl-t-butyl Ether	1.0	< 50	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 50	ug/L
1,1-Dichloroethane	1.0	< 50	ug/L
trans-1,2-Dichloroethene	1.0	< 50	ug/L
2-Butanone	10	< 500	ug/L
Carbon Disulfide	1.0	< 50	ug/L
Bromochloromethane	1.0	< 50	ug/L
Chloroform	1.0	< 50	ug/L
2,2-Dichloropropane	1.0	< 50	ug/L
1,2-Dichloroethane	1.0	< 50	ug/L
Vinyl Acetate	1.0	< 50	ug/L
1,1,1-Trichloroethane	1.0	< 50	ug/L
1,1-Dichloropropene	1.0	< 50	ug/L
Carbon Tetrachloride	1.0	< 50	ug/L
Benzene	1.0	15000(D1000)	ug/L
1,2-Dichloropropane	1.0	< 50	ug/L
Trichloroethene	1.0	< 50	ug/L
Bromodichloromethane	1.0	< 50	ug/L
2-Chloroethyl Vinyl Ether	10	< 500	ug/L
cis-1,3-Dichloropropene	1.0	< 50	ug/L
trans-1,3-Dichloropropene	1.0	< 50	ug/L
1,1,2-Trichloroethane	1.0	< 50	ug/L
1,3-Dichloropropane	1.0	< 50	ug/L
Dibromomethane	1.0	< 50	ug/L
Toluene	1.0	21000(D1000)	ug/L
1,2-Dibromoethane	1.0	< 50	ug/L
4-Methyl-2-Pentanone	10	< 500	ug/L
2-Hexanone	10	< 500	ug/L
Dibromochloromethane	1.0	< 50	ug/L
Tetrachloroethene	1.0	< 50	ug/L
Chlorobenzene	1.0	< 50	ug/L
Ethylbenzene	1.0	4100	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 50	ug/L
m&p Xylenes	1.0	17000	ug/L
o-Xylene	1.0	5600	ug/L



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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

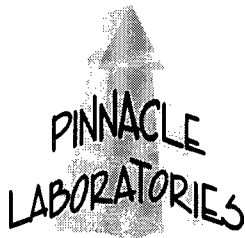
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904067-03	9904141530 (RW 15)	AQUEOUS	4/14/99	N/A	05/11/99	50
PARAMETER	DET. LIMIT		UNITS			
Styrene	1.0	< 50	ug/L			
Bromoform	1.0	< 50	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 50	ug/L			
1,2,3-Trichloropropane	1.0	< 50	ug/L			
Isopropyl Benzene	1.0	120	ug/L			
Bromobenzene	1.0	< 50	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 50	ug/L			
n-Propylbenzene	1.0	430	ug/L			
2-Chlorotoluene	1.0	< 50	ug/L			
4-Chlorotoluene	1.0	< 50	ug/L			
1,3,5-Trimethylbenzene	1.0	780	ug/L			
tert-Butylbenzene	1.0	< 50	ug/L			
1,2,4-Trimethylbenzene	1.0	2800	ug/L			
sec-Butylbenzene	1.0	< 50	ug/L			
1,3-Dichlorobenzene	1.0	< 50	ug/L			
1,4-Dichlorobenzene	1.0	< 50	ug/L			
p-Isopropyltoluene	1.0	< 50	ug/L			
1,2-Dichlorobenzene	1.0	< 50	ug/L			
n-Butylbenzene	1.0	< 50	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 50	ug/L			
1,2,4-Trichlorobenzene	1.0	< 50	ug/L			
Naphthalene	1.0	570	ug/L			
Hexachlorobutadiene	1.0	< 50	ug/L			
1,2,3-Trichlorobenzene	1.0	< 50	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	99
	(80 - 120)
Toluene-d8	160 *
	(88 - 110)
Bromofluorobenzene	95
	(86 - 115)

(D1000) = SAMPLE ANALYZED AT 1000X DILUTION FOR THESE PARAMETERS.
 DILUTION ANALYZED ON 5/12/99.

* = SURROGATE RECOVERY OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE.



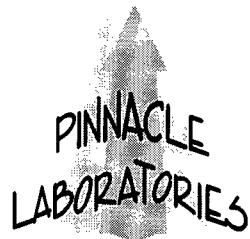
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-04	9904141615 (RW 17)	AQUEOUS	4/14/99	N/A	05/12/99	5
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	5.6	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 5.0	ug/L
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	250	ug/L
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	95	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	66	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L



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GC/MS RESULTS

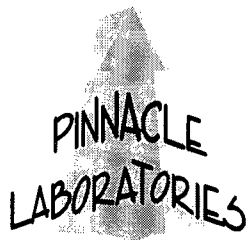
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 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-04	9904141615 (RW 17)	AQUEOUS	4/14/99	N/A	05/12/99	5

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	290 ug/L
o-Xylene	1.0	78 ug/L
Styrene	1.0	< 5.0 ug/L
Bromoform	1.0	< 5.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0 ug/L
1,2,3-Trichloropropane	1.0	< 5.0 ug/L
Isopropyl Benzene	1.0	15 ug/L
Bromobenzene	1.0	< 5.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0 ug/L
n-Propylbenzene	1.0	16 ug/L
2-Chlorotoluene	1.0	< 5.0 ug/L
4-Chlorotoluene	1.0	< 5.0 ug/L
1,3,5-Trimethylbenzene	1.0	7.8 ug/L
tert-Butylbenzene	1.0	< 5.0 ug/L
1,2,4-Trimethylbenzene	1.0	310 ug/L
sec-Butylbenzene	1.0	11 ug/L
1,3-Dichlorobenzene	1.0	< 5.0 ug/L
1,4-Dichlorobenzene	1.0	< 5.0 ug/L
p-Isopropyltoluene	1.0	14 ug/L
1,2-Dichlorobenzene	1.0	< 5.0 ug/L
n-Butylbenzene	1.0	< 5.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 5.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0 ug/L
Naphthalene	1.0	25 ug/L
Hexachlorobutadiene	1.0	< 5.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	103 (80 - 120)
Toluene-d8	109 (88 - 110)
Bromofluorobenzene	104 (86 - 115)



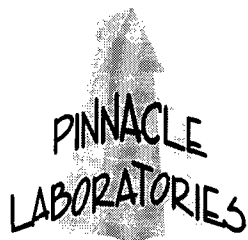
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 Phone (505) 344-3777
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-05	9904141710 (MW 28)	AQUEOUS	4/14/99	N/A	05/11/99	100

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 100	ug/L
Chloromethane	1.0	< 100	ug/L
Vinyl Chloride	1.0	< 100	ug/L
Bromomethane	1.0	< 100	ug/L
Chloroethane	1.0	< 100	ug/L
Trichlorofluoromethane	1.0	< 100	ug/L
Acetone	10	< 1000	ug/L
Acrolein	5.0	< 500	ug/L
1,1-Dichloroethene	1.0	< 100	ug/L
Iodomethane	1.0	< 100	ug/L
Methylene Chloride	1.0	< 100	ug/L
Acrylonitrile	5.0	< 500	ug/L
cis-1,2-Dichloroethene	1.0	< 100	ug/L
Methyl-t-butyl Ether	1.0	< 100	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 100	ug/L
1,1-Dichloroethane	1.0	< 100	ug/L
trans-1,2-Dichloroethene	1.0	< 100	ug/L
2-Butanone	10	< 1000	ug/L
Carbon Disulfide	1.0	< 100	ug/L
Bromochloromethane	1.0	< 100	ug/L
Chloroform	1.0	< 100	ug/L
2,2-Dichloropropane	1.0	< 100	ug/L
1,2-Dichloroethane	1.0	< 100	ug/L
Vinyl Acetate	1.0	< 100	ug/L
1,1,1-Trichloroethane	1.0	< 100	ug/L
1,1-Dichloropropene	1.0	< 100	ug/L
Carbon Tetrachloride	1.0	< 100	ug/L
Benzene	1.0	12000(D1000)	ug/L
1,2-Dichloropropane	1.0	< 100	ug/L
Trichloroethene	1.0	< 100	ug/L
Bromodichloromethane	1.0	< 100	ug/L
2-Chloroethyl Vinyl Ether	10	< 1000	ug/L
cis-1,3-Dichloropropene	1.0	< 100	ug/L
trans-1,3-Dichloropropene	1.0	< 100	ug/L
1,1,2-Trichloroethane	1.0	< 100	ug/L
1,3-Dichloropropane	1.0	< 100	ug/L
Dibromomethane	1.0	< 100	ug/L
Toluene	1.0	43000(D1000)	ug/L
1,2-Dibromoethane	1.0	< 100	ug/L
4-Methyl-2-Pentanone	10	< 1000	ug/L
2-Hexanone	10	< 1000	ug/L
Dibromochloromethane	1.0	< 100	ug/L
Tetrachloroethene	1.0	< 100	ug/L
Chlorobenzene	1.0	< 100	ug/L
Ethylbenzene	1.0	6600	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 100	ug/L
m&p Xylenes	1.0	19000(D1000)	ug/L
o-Xylene	1.0	12000	ug/L



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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD
 PROJECT # : NONE
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

PINNACLE I.D. : 904067
 DATE RECEIVED : 4/15/99

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-05	9904141710 (MW 28)	AQUEOUS	4/14/99	N/A	05/11/99	100

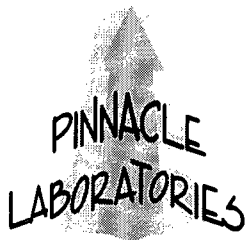
PARAMETER	DET. LIMIT		UNITS
Styrene	1.0	< 100	ug/L
Bromoform	1.0	< 100	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 100	ug/L
1,2,3-Trichloropropane	1.0	< 100	ug/L
Isopropyl Benzene	1.0	330	ug/L
Bromobenzene	1.0	< 100	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 100	ug/L
n-Propylbenzene	1.0	830	ug/L
2-Chlorotoluene	1.0	< 100	ug/L
4-Chlorotoluene	1.0	< 100	ug/L
1,3,5-Trimethylbenzene	1.0	1500	ug/L
tert-Butylbenzene	1.0	< 100	ug/L
1,2,4-Trimethylbenzene	1.0	4900	ug/L
sec-Butylbenzene	1.0	< 100	ug/L
1,3-Dichlorobenzene	1.0	< 100	ug/L
1,4-Dichlorobenzene	1.0	< 100	ug/L
p-Isopropyltoluene	1.0	< 100	ug/L
1,2-Dichlorobenzene	1.0	< 100	ug/L
n-Butylbenzene	1.0	< 100	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 100	ug/L
1,2,4-Trichlorobenzene	1.0	< 100	ug/L
Naphthalene	1.0	730	ug/L
Hexachlorobutadiene	1.0	< 100	ug/L
1,2,3-Trichlorobenzene	1.0	< 100	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	93 (80 - 120)
Toluene-d8	157 * (88 - 110)
Bromofluorobenzene	95 (86 - 115)

(D1000) = SAMPLE ANALYZED AT 1000X DILUTION FOR THESE PARAMETERS.
 DILUTION ANALYZED ON 5/12/99.

* = SURROGATE RECOVERY OUTSIDE RECOVERY LIMITS, DUE TO MATRIX INTERFERENCE.



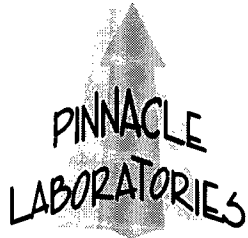
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-06	9904150900 (MW 23)	AQUEOUS	4/15/99	N/A	05/11/99	100
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 100	ug/L
Chloromethane	1.0	< 100	ug/L
Vinyl Chloride	1.0	< 100	ug/L
Bromomethane	1.0	< 100	ug/L
Chloroethane	1.0	< 100	ug/L
Trichlorofluoromethane	1.0	< 100	ug/L
Acetone	10	< 1000	ug/L
Acrolein	5.0	< 500	ug/L
1,1-Dichloroethene	1.0	< 100	ug/L
Iodomethane	1.0	< 100	ug/L
Methylene Chloride	1.0	< 100	ug/L
Acrylonitrile	5.0	< 500	ug/L
cis-1,2-Dichloroethene	1.0	< 100	ug/L
Methyl-t-butyl Ether	1.0	< 100	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 100	ug/L
1,1-Dichloroethane	1.0	< 100	ug/L
trans-1,2-Dichloroethene	1.0	< 100	ug/L
2-Butanone	10	< 1000	ug/L
Carbon Disulfide	1.0	< 100	ug/L
Bromochloromethane	1.0	< 100	ug/L
Chloroform	1.0	< 100	ug/L
2,2-Dichloropropane	1.0	< 100	ug/L
1,2-Dichloroethane	1.0	< 100	ug/L
Vinyl Acetate	1.0	< 100	ug/L
1,1,1-Trichloroethane	1.0	< 100	ug/L
1,1-Dichloropropene	1.0	< 100	ug/L
Carbon Tetrachloride	1.0	< 100	ug/L
Benzene	1.0	30000(D250)	ug/L
1,2-Dichloropropane	1.0	< 100	ug/L
Trichloroethene	1.0	< 100	ug/L
Bromodichloromethane	1.0	< 100	ug/L
2-Chloroethyl Vinyl Ether	10	< 1000	ug/L
cis-1,3-Dichloropropene	1.0	< 100	ug/L
trans-1,3-Dichloropropene	1.0	< 100	ug/L
1,1,2-Trichloroethane	1.0	< 100	ug/L
1,3-Dichloropropane	1.0	< 100	ug/L
Dibromomethane	1.0	< 100	ug/L
Toluene	1.0	14000	ug/L
1,2-Dibromoethane	1.0	< 100	ug/L
4-Methyl-2-Pentanone	10	< 1000	ug/L
2-Hexanone	10	< 1000	ug/L
Dibromochloromethane	1.0	< 100	ug/L
Tetrachloroethene	1.0	< 100	ug/L
Chlorobenzene	1.0	< 100	ug/L
Ethylbenzene	1.0	4000	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 100	ug/L
m&p Xylenes	1.0	18000	ug/L
o-Xylene	1.0	4400	ug/L



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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

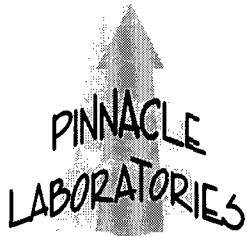
SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-06	9904150900 (MW 23)	AQUEOUS	4/15/99	N/A	05/11/99	100

PARAMETER	DET.	LIMIT	UNITS
Styrene	1.0	< 100	ug/L
Bromoform	1.0	< 100	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 100	ug/L
1,2,3-Trichloropropane	1.0	< 100	ug/L
Isopropyl Benzene	1.0	150	ug/L
Bromobenzene	1.0	< 100	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 100	ug/L
n-Propylbenzene	1.0	390	ug/L
2-Chlorotoluene	1.0	< 100	ug/L
4-Chlorotoluene	1.0	< 100	ug/L
1,3,5-Trimethylbenzene	1.0	690	ug/L
tert-Butylbenzene	1.0	< 100	ug/L
1,2,4-Trimethylbenzene	1.0	2400	ug/L
sec-Butylbenzene	1.0	< 100	ug/L
1,3-Dichlorobenzene	1.0	< 100	ug/L
1,4-Dichlorobenzene	1.0	< 100	ug/L
p-Isopropyltoluene	1.0	< 100	ug/L
1,2-Dichlorobenzene	1.0	< 100	ug/L
n-Butylbenzene	1.0	< 100	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 100	ug/L
1,2,4-Trichlorobenzene	1.0	< 100	ug/L
Naphthalene	1.0	330	ug/L
Hexachlorobutadiene	1.0	< 100	ug/L
1,2,3-Trichlorobenzene	1.0	< 100	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	95 (80 - 120)
Toluene-d8	104 (88 - 110)
Bromofluorobenzene	98 (86 - 115)

(D250) = SAMPLE ANALYZED AT 250X DILUTION FOR THESE PARAMETERS.
 DILUTION ANALYZED ON 5/12/99.



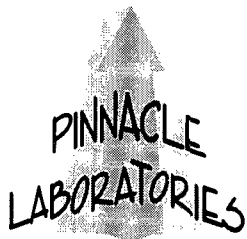
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-07	9904151000 (MW-9)	AQUEOUS	4/15/99	N/A	05/11/99	100
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 100	ug/L
Chloromethane	1.0	< 100	ug/L
Vinyl Chloride	1.0	< 100	ug/L
Bromomethane	1.0	< 100	ug/L
Chloroethane	1.0	< 100	ug/L
Trichlorofluoromethane	1.0	< 100	ug/L
Acetone	10	< 1000	ug/L
Acrolein	5.0	< 500	ug/L
1,1-Dichloroethene	1.0	< 100	ug/L
Iodomethane	1.0	< 100	ug/L
Methylene Chloride	1.0	< 100	ug/L
Acrylonitrile	5.0	< 500	ug/L
cis-1,2-Dichloroethene	1.0	< 100	ug/L
Methyl-t-butyl Ether	1.0	< 100	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 100	ug/L
1,1-Dichloroethane	1.0	< 100	ug/L
trans-1,2-Dichloroethene	1.0	< 100	ug/L
2-Butanone	10	< 1000	ug/L
Carbon Disulfide	1.0	< 100	ug/L
Bromochloromethane	1.0	< 100	ug/L
Chloroform	1.0	< 100	ug/L
2,2-Dichloropropane	1.0	< 100	ug/L
1,2-Dichloroethane	1.0	< 100	ug/L
Vinyl Acetate	1.0	< 100	ug/L
1,1,1-Trichloroethane	1.0	< 100	ug/L
1,1-Dichloropropene	1.0	< 100	ug/L
Carbon Tetrachloride	1.0	< 100	ug/L
Benzene	1.0	14000	ug/L
1,2-Dichloropropane	1.0	< 100	ug/L
Trichloroethene	1.0	< 100	ug/L
Bromodichloromethane	1.0	< 100	ug/L
2-Chloroethyl Vinyl Ether	10	< 1000	ug/L
cis-1,3-Dichloropropene	1.0	< 100	ug/L
trans-1,3-Dichloropropene	1.0	< 100	ug/L
1,1,2-Trichloroethane	1.0	< 100	ug/L
1,3-Dichloropropane	1.0	< 100	ug/L
Dibromomethane	1.0	< 100	ug/L
Toluene	1.0	280	ug/L
1,2-Dibromoethane	1.0	< 100	ug/L
4-Methyl-2-Pentanone	10	< 1000	ug/L
2-Hexanone	10	< 1000	ug/L
Dibromochloromethane	1.0	< 100	ug/L
Tetrachloroethene	1.0	< 100	ug/L
Chlorobenzene	1.0	< 100	ug/L
Ethylbenzene	1.0	< 100	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 100	ug/L



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GC/MS RESULTS

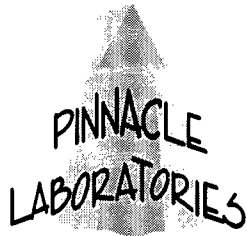
TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-07	9904151000 (MW-9)	AQUEOUS	4/15/99	N/A	05/11/99	100

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	5200	ug/L
o-Xylene	1.0	480	ug/L
Styrene	1.0	< 100	ug/L
Bromoform	1.0	< 100	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 100	ug/L
1,2,3-Trichloropropane	1.0	< 100	ug/L
Isopropyl Benzene	1.0	< 100	ug/L
Bromobenzene	1.0	< 100	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 100	ug/L
n-Propylbenzene	1.0	< 100	ug/L
2-Chlorotoluene	1.0	< 100	ug/L
4-Chlorotoluene	1.0	< 100	ug/L
1,3,5-Trimethylbenzene	1.0	300	ug/L
tert-Butylbenzene	1.0	< 100	ug/L
1,2,4-Trimethylbenzene	1.0	830	ug/L
sec-Butylbenzene	1.0	< 100	ug/L
1,3-Dichlorobenzene	1.0	< 100	ug/L
1,4-Dichlorobenzene	1.0	< 100	ug/L
p-Isopropyltoluene	1.0	< 100	ug/L
1,2-Dichlorobenzene	1.0	< 100	ug/L
n-Butylbenzene	1.0	< 100	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 100	ug/L
1,2,4-Trichlorobenzene	1.0	< 100	ug/L
Naphthalene	1.0	< 100	ug/L
Hexachlorobutadiene	1.0	< 100	ug/L
1,2,3-Trichlorobenzene	1.0	< 100	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	96 (80 - 120)
Toluene-d8	104 (88 - 110)
Bromofluorobenzene	97 (86 - 115)



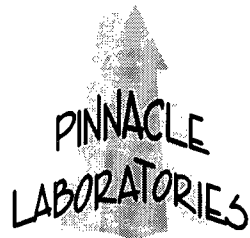
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD Pinnacle I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-08	TRIP BLANK	AQUEOUS	4/13/99	N/A	05/11/99	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L



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GC/MS RESULTS

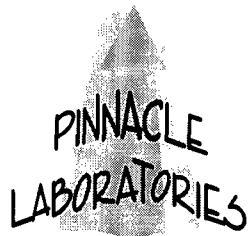
TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE DATE RECEIVED : 4/15/99
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
904067-08	TRIP BLANK	AQUEOUS	4/13/99	N/A	05/11/99	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	95 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	94 (86 - 115)



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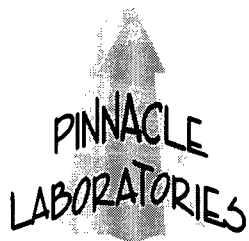
GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	051199	AQUEOUS	N/A	05/11/99	1

PARAMETER	DET. LIMIT	UNITS
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Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L



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GC/MS RESULTS

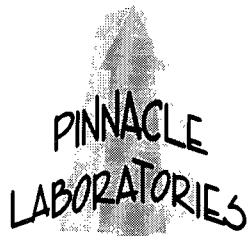
TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	051199	AQUEOUS	N/A	05/11/99	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	113 (80 - 120)
Toluene-d8	109 (88 - 110)
Bromofluorobenzene	107 (86 - 115)



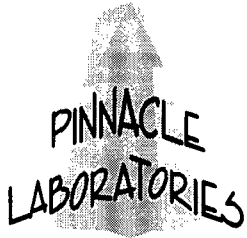
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	051299	AQUEOUS	N/A	05/12/99	1
PARAMETER	DET. LIMIT	UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L



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GC/MS RESULTS

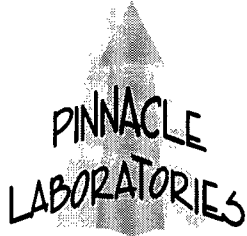
TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : NMOCD PINNACLE I.D. : 904067
 PROJECT # : NONE
 PROJECT NAME : GIANT BLOOMFIELD REFINERY

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	051299	AQUEOUS	N/A	05/12/99	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	96 (80 - 120)
Toluene-d8	103 (88 - 110)
Bromofluorobenzene	98 (86 - 115)



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MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
SPIKED SAMPLE : 904130-01
CLIENT : NMOCD
PROJECT # : NONE
PROJECT NAME : GIANT REFINERY BLOOMFIELD

PINNACLE I.D. : 904067
DATE ANALYZED : 5/11/99
UNITS : ug/L (PPB)

COMPOUND	SAMPLE CONC.	SPIKE ADDED	MS RESULT	MSD RESULT	MS %REC	MSD %REC	RPD	QC LIMITS RPD	QC LIMITS %RECOVERY
1,1-DICHLOROETHENE	<1.0	50.0	44.6	46.3	89	93	4	14	61-145
BENZENE	<1.0	50.0	49.7	51.2	99	102	3	11	76-127
TRICHLOROETHENE	<1.0	50.0	47.8	49.0	96	98	2	14	71-120
TOLUENE	<1.0	50.0	48.0	49.5	96	99	3	13	76-125
CHLOROBENZENE	<1.0	50.0	52.4	53.6	105	107	2	13	75-130

ATEL

Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: 12523

Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:
FAX: (505) 344-4413

Attn: Kimberly Mcneill

Our Lab #: MAR99-09062

Your Sample ID: 904067-01

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #: PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/14/99 2:00 PM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	42	MG/L	4/22/99	KRG	14488

End of Report

Report Approved By: _____

Deborah K. Johnson

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Lab Number MAR99-09062:Page 1

ATEL

Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: 12523

Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:

Attn: Kimberly Mcneill

FAX: (505) 344-4413

Our Lab #: MAR99-09063

Your Sample ID: 904067-02

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/14/99 3:15 PM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	41	MG/L	4/22/99	KRG	14488

End of Report

Report Approved By: _____

Deborah K. Johnson

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Lab Number MAR99-09063: Page 1

ATEL

Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: I2523

Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:

Attn: Kimberly Mcneill

FAX: (505) 344-4413

Our Lab #: MAR99-09064

Your Sample ID: 904067-03

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/14/99 3:30 PM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	45	MG/L	4/22/99	KRG	14488

End of Report

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Lab Number MAR99-09064: Page 1

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Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: 12523

Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:
FAX: (505) 344-4413

Attn: Kimberly McNeill

Our Lab #: MAR99-09065

Your Sample ID: 904067-04

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #: PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/14/99 4:15 PM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO2	41	MG/L	4/22/99	KRG	14488

End of Report

Report Approved By: _____

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Lab Number MAR99-09065:Page 1

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Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: 12523

Report Date: 27-Apr-99

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Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:
FAX: (505) 344-4413

Attn: Kimberly Mcneill

Our Lab #: MAR99-09066

Your Sample ID: 904067-05

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/14/99 5:10 PM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	46	MG/L	4/22/99	KRG	14488

End of Report

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Lab Number MAR99-09066: Page 1

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Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:
FAX: (505) 344-4413

Attn: Kimberly Mcneill

Our Lab #: MAR99-09067

Your Sample ID: 904067-06

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/15/99 9:00 AM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	48	MG/L	4/22/99	KRG	14488

End of Report

Report Approved By: _____

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Lab Number MAR99-09067:Page 1

ATEL

Aqua Tech Environmental Laboratories, Inc.

- CERTIFICATE OF ANALYSIS -

Client #: 12523

Report Date: 27-Apr-99

Pinnacle Laboratories, Inc.
2709 - D Pan American Freeway, NE
Albuquerque, NM 87107-

Phone: (505) 344-3777 Ext:
FAX: (505) 344-4413

Attn: Kimberly Mcneill

Our Lab #: MAR99-09068

Your Sample ID: 904067-07

Date Logged-In: 4/19/99

Sample Source: Other/Undefined

Matrix: Water

Client Project #:

PO#:

Project #:

Date Submitted to Lab: 4/16/99

- COLLECTION INFORMATION -

Date/Time/By: 4/15/99 10:00 AM

Test Group	EPA Method	Test	Result	Units	Analysis Date	Analyst	WS#
SILICA-MS	200.8	Silica, as SiO ₂	46	MG/L	4/22/99	KRG	14488

End of Report

Report Approved By: _____

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Lab Number MAR99-09068:Page 1

Pinnacle Laboratories, Inc. Interlab Chain of Custody

Date: 4/15 Page: 1 of 1

Network Project Manager: Kimberly D. McNeill
 Pinnacle Laboratories, Inc.
 2709-D Pan American Freeway, NE
 Albuquerque, New Mexico 87107
 (505) 344-3777 Fax (505) 344-4413

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL	Silicon by ICP	TOX	TOC	Gen Chemistry	Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS	
904067-01	4/14	1406	AQ						X																			
-02		1515							X																			
-03		1530							X																			
-04		1615							X																			
-05		1710							X																			
-06	4/15	0900							X																			
-07		1000							X																			

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY:	RELINQUISHED BY:
PROJECT #: 904067	Total Number of Containers	PENSACOLA - STL-FL	Signature: <i>[Signature]</i> Time: 4:00 P	Signature: <i>[Signature]</i> Time: 11:15
PROJ. NAME: NMOCD	Chain of Custody Seals	PORTLAND - ESL-OR	Printed Name: KIM McNeill Date: 4/15/99	Printed Name: J. J. Jellars Date: 4/16
QC LEVEL: STD IV	Received Intact?	STL - CT		
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	STL - NEW JERSEY		
TAT: STANDARD RUSH!!	LAB NUMBER:	N. CREEK		
		BARRINGER	RECEIVED BY: 1. Pinnacle Laboratories, Inc.	RECEIVED BY: 2. [Signature]
DUE DATE: 4/30	COMMENTS:	SEQUOIA	Signature: [Signature] Time: [Time]	Signature: [Signature] Time: 11:15
RUSH SURCHARGE: 0		ATEL - Maricopa	Printed Name: [Name] Date: [Date]	Printed Name: J. J. Jellars Date: 4/16
CLIENT DISCOUNT:			Company	Company ATEL
SPECIAL CERTIFICATION				
REQUIRED: YES NO				

Environmental Services Laboratory, Inc.

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

May 06, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

TEL: 505-344-3777

FAX (505) 344-4413

RE: 904067/NMOCD/Giant Bloomfield Refiner

Order No.: 9904085

Dear Kim McNeill,

Environmental Services Laboratory received 7 samples on 4/16/99 for the analyses presented in the following report.


The Samples were analyzed for the following tests:

- Alkalinity (Alkalinity)
- BNA Semi-Vol Organics, Aqueous (SW8270B)
- Bromide (Bromide)
- CHLORIDE (Chloride)
- CONDUCTANCE (E120.1)
- Fluoride (fluoride)
- ICP Metals (ICPMET)
- MERCURY (Mercury)
- Sulfate (Sulfate)
- TOTAL DISSOLVED SOLIDS (E160.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

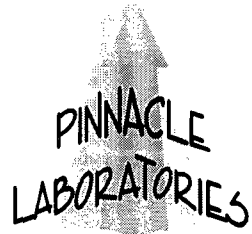


Kimberly Hill



Technical Review

ANALYTICAL SERVICES FOR THE ENVIRONMENT



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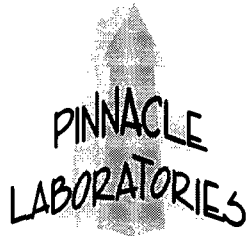
GENERAL CHEMISTRY RESULTS

CLIENT	: NMOCD	PINNACLE I.D.	: 904067
PROJECT #	: (none)	DATE RECEIVED	: 4/15/99
PROJECT NAME	: GIANT BLOOMFIELD REFINERY		

SAMPLE		DATE	DATE
ID. #	CLIENT I.D.	SAMPLED	ANALYZED
01	9904141400 (MW-4)	AQUEOUS 4/14/99	4/16/99
02	9904141515 (RW-14)	AQUEOUS 4/14/99	4/16/99
03	9904141530 (RW-15)	AQUEOUS 4/14/99	4/16/99

PARAMETER	UNITS	9904141400 (MW-4)	9904141515 (RW-14)	9904141530 (RW-15)
PH (150.1)	UNITS	6.87	7.17	7.00

CHEMIST NOTES:
 N/A



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GENERAL CHEMISTRY RESULTS

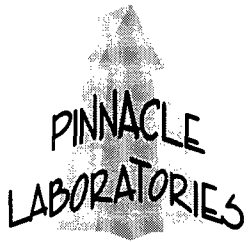
CLIENT : NMOCD
PROJECT # : (none)
PROJECT NAME : GIANT BLOOMFIELD REFINERY

PINNACLE I.D. : 904067
DATE RECEIVED : 4/15/99

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE ANALYZED
04	9904141615 (RW-17)	AQUEOUS	4/14/99	4/16/99
05	9904141710 (MW-28)	AQUEOUS	4/14/99	4/16/99
06	9904150900 (MW-23)	AQUEOUS	4/15/99	4/16/99

PARAMETER	UNITS	9904141615 (RW-17)	9904141710 (MW-28)	9904150900 (MW-23)
PH (150.1)	UNITS	7.10	7.00	6.96

CHEMIST NOTES:
N/A



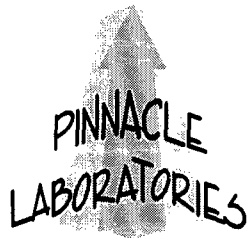
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 Albuquerque, New Mexico 87107
 Phone (505) 344-3777
 Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : NMOCD
 PROJECT # : (none)
 PROJECT NAME : GIANT BLOOMFIELD REFINERY
 PINNACLE I.D. : 904067
 DATE RECEIVED : 4/15/99

SAMPLE			DATE	DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
07	9904151000 (MW-9)	AQUEOUS	4/15/99	4/16/99
PARAMETER			UNITS	9904151000 (MW-9)
PH (150.1)			UNITS	7.02

CHEMIST NOTES:
 N/A



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : NMOCD PINNACLE I.D. : 904067
PROJECT # : (none) SAMPLE MATRIX : AQUEOUS
PROJECT NAME : GIANT BLOOMFIELD REFINERY

PARAMETER	UNITS	PINNACLE I.D.	SAMPLE RESULT	DUP. RESULT	% RPD
PH	UNITS	704069-04	7.10	7.04	0.85

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-01A

Client Sample ID: 904067-01
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	1100	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	1100	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	2	0.1		mg/L	5	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	380	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	2340	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	18	5		mg/L	1	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	2000	10		mg/L	1	4/19/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Lab Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery
 Lab ID: 9904085-01A

Client Sample ID: 904067-01
 Tag Number:
 Collection Date: 4/14/99
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
ICP METALS		SW 6010 / EPA 200.				Analyst: jph	
Aluminum	ND	0.14		mg/L	1	4/30/99	
Antimony	ND	0.005		mg/L	1	4/30/99	
Arsenic	0.0065	0.005		mg/L	1	4/30/99	
Barium	2.2	0.005		mg/L	1	4/30/99	
Beryllium	ND	0.002		mg/L	1	4/30/99	
Boron	0.61	0.01		mg/L	1	4/30/99	
Cadmium	ND	0.002		mg/L	1	4/30/99	
Calcium	170	0.13		mg/L	1	4/30/99	
Chromium	ND	0.02		mg/L	1	4/30/99	
Cobalt	ND	0.005		mg/L	1	4/30/99	
Copper	ND	0.055		mg/L	1	4/30/99	
Iron	11	0.2		mg/L	1	4/30/99	
Lead	ND	0.005		mg/L	1	4/30/99	
Magnesium	55	0.08		mg/L	1	4/30/99	
Manganese	4.7	0.005		mg/L	1	4/30/99	
Molybdenum	0.012	0.005		mg/L	1	4/30/99	
Nickel	ND	0.01		mg/L	1	4/30/99	
Potassium	6.5	0.2		mg/L	1	4/30/99	
Selenium	ND	0.005		mg/L	1	4/30/99	
Silver	ND	0.005		mg/L	1	4/30/99	
Sodium	510	20		mg/L	1	4/30/99	
Thallium	ND	0.01		mg/L	1	4/30/99	
Vanadium	ND	0.005		mg/L	1	4/30/99	
Zinc	ND	0.04		mg/L	1	4/30/99	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Lab Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery
 Lab ID: 9904085-01A

Client Sample ID: 904067-01
 Tag Number:
 Collection Date: 4/14/99
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	ND	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	23.8	5		µg/L	1	4/23/99
2-Methylphenol	ND	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	ND	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories **Client Sample ID:** 904067-01
Lab Order: 9904085 **Tag Number:**
Project: 904067/NMOCD/Giant Bloomfield Refinery **Collection Date:** 4/14/99
Lab ID: 9904085-01A **Matrix:** AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	ND	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	48.6	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	10	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-01
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/14/99
Lab ID:	9904085-01A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	71.9	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	21.6	43-116	S	%REC	1	4/23/99
Surr: 2-Fluorophenol	33.1	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	52.4	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	52.2	35-114		%REC	1	4/23/99
Surr: Phenol-d5	21.0	10-94		%REC	1	4/23/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-02
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/14/99
Lab ID:	9904085-02A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO ₃)	840	5		mg/L CaCO ₃	1	4/25/99
Alkalinity, Carbonate (As CaCO ₃)	ND	5		mg/L CaCO ₃	1	4/25/99
Alkalinity, Total (As CaCO ₃)	840	5		mg/L CaCO ₃	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	ND	0.1		mg/L	1	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	420	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	2140	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	12	5		mg/L	1	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	1600	10		mg/L	1	4/19/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-02A

Client Sample ID: 904067-02
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS	SW 6010 / EPA 200.					Analyst: jph
Aluminum	0.2	0.14		mg/L	1	4/30/99
Antimony	ND	0.005		mg/L	1	4/30/99
Arsenic	0.0057	0.005		mg/L	1	4/30/99
Barium	0.75	0.005		mg/L	1	4/30/99
Beryllium	ND	0.002		mg/L	1	4/30/99
Boron	0.52	0.01		mg/L	1	4/30/99
Cadmium	ND	0.002		mg/L	1	4/30/99
Calcium	96	0.13		mg/L	1	4/30/99
Chromium	ND	0.005		mg/L	1	4/30/99
Cobalt	ND	0.005		mg/L	1	4/30/99
Copper	ND	0.005		mg/L	1	4/30/99
Iron	5.1	0.2		mg/L	1	4/30/99
Lead	ND	0.005		mg/L	1	4/30/99
Magnesium	37	0.08		mg/L	1	4/30/99
Manganese	2.3	0.005		mg/L	1	4/30/99
Molybdenum	0.0061	0.005		mg/L	1	4/30/99
Nickel	0.055	0.01		mg/L	1	4/30/99
Potassium	5.1	0.2		mg/L	1	4/30/99
Selenium	ND	0.005		mg/L	1	4/30/99
Silver	ND	0.005		mg/L	1	4/30/99
Sodium	450	20		mg/L	1	4/30/99
Thallium	ND	0.01		mg/L	1	4/30/99
Vanadium	ND	0.005		mg/L	1	4/30/99
Zinc	ND	0.04		mg/L	1	4/30/99

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories **Client Sample ID:** 904067-02
Lab Order: 9904085 **Tag Number:**
Project: 904067/NMOCD/Giant Bloomfield Refinery **Collection Date:** 4/14/99
Lab ID: 9904085-02A **Matrix:** AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	7.93	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	174	5		µg/L	1	4/23/99
2-Methylphenol	6.13	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	37.8	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-02A

Client Sample ID: 904067-02
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	ND	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	371	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	5.44	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-02A

Client Sample ID: 904067-02
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	79.5	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	61.4	43-116		%REC	1	4/23/99
Surr: 2-Fluorophenol	33.0	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	63.4	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	57.2	35-114		%REC	1	4/23/99
Surr: Phenol-d5	15.1	10-94		%REC	1	4/23/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-03
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/14/99
Lab ID:	9904085-03A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	0.79	0.1		mg/L	1	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	800	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	3140	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	20	5		mg/L	1	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	2300	10		mg/L	1	4/19/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-03
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/14/99
Lab ID:	9904085-03A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS	SW 6010 / EPA 200.					Analyst: jph
Aluminum	0.86	0.14		mg/L	1	4/30/99
Antimony	ND	0.005		mg/L	1	4/30/99
Arsenic	ND	0.005		mg/L	1	4/30/99
Barium	1.1	0.005		mg/L	1	4/30/99
Beryllium	ND	0.002		mg/L	1	4/30/99
Boron	0.77	0.01		mg/L	1	4/30/99
Cadmium	ND	0.002		mg/L	1	4/30/99
Calcium	200	0.13		mg/L	1	4/30/99
Chromium	ND	0.02		mg/L	1	4/30/99
Cobalt	ND	0.005		mg/L	1	4/30/99
Copper	ND	0.055		mg/L	1	4/30/99
Iron	8.3	0.2		mg/L	1	4/30/99
Lead	ND	0.005		mg/L	1	4/30/99
Magnesium	55	0.08		mg/L	1	4/30/99
Manganese	5	0.005		mg/L	1	4/30/99
Molybdenum	0.0065	0.005		mg/L	1	4/30/99
Nickel	0.046	0.01		mg/L	1	4/30/99
Potassium	7.1	0.2		mg/L	1	4/30/99
Selenium	ND	0.005		mg/L	1	4/30/99
Silver	ND	0.005		mg/L	1	4/30/99
Sodium	620	20		mg/L	1	4/30/99
Thallium	ND	0.01		mg/L	1	4/30/99
Vanadium	ND	0.005		mg/L	1	4/30/99
Zinc	ND	0.04		mg/L	1	4/30/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-03A

Client Sample ID: 904067-03
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	19.1	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	129	5		µg/L	1	4/23/99
2-Methylphenol	11	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	70.1	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-03A

Client Sample ID: 904067-03
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	8.25	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	354	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-03A

Client Sample ID: 904067-03
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	79.8	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	62.2	43-116		%REC	1	4/23/99
Surr: 2-Fluorophenol	34.4	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	63.8	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	53.8	35-114		%REC	1	4/23/99
Surr: Phenol-d5	15.4	10-94		%REC	1	4/23/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-04A

Client Sample ID: 904067-04
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	1300	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	1300	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	0.76	0.1		mg/L	1	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	250	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	2910	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	210	42		mg/L	8.33	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	2200	10		mg/L	1	4/19/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories **Client Sample ID:** 904067-04
Lab Order: 9904085 **Tag Number:**
Project: 904067/NMOCD/Giant Bloomfield Refinery **Collection Date:** 4/14/99
Lab ID: 9904085-04A **Matrix:** AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
ICP METALS		SW 6010 / EPA 200.				Analyst: jph	
Aluminum	ND	0.05		mg/L	1	4/30/99	
Antimony	ND	0.005		mg/L	1	4/30/99	
Arsenic	ND	0.005		mg/L	1	4/30/99	
Barium	1.2	0.005		mg/L	1	4/30/99	
Beryllium	ND	0.002		mg/L	1	4/30/99	
Boron	0.69	0.01		mg/L	1	4/30/99	
Cadmium	ND	0.002		mg/L	1	4/30/99	
Calcium	140	0.13		mg/L	1	4/30/99	
Chromium	ND	0.005		mg/L	1	4/30/99	
Cobalt	ND	0.005		mg/L	1	4/30/99	
Copper	ND	0.005		mg/L	1	4/30/99	
Iron	3.7	0.2		mg/L	1	4/30/99	
Lead	ND	0.005		mg/L	1	4/30/99	
Magnesium	68	0.08		mg/L	1	4/30/99	
Manganese	2.3	0.005		mg/L	1	4/30/99	
Molybdenum	ND	0.005		mg/L	1	4/30/99	
Nickel	ND	0.005		mg/L	1	4/30/99	
Potassium	6.2	0.2		mg/L	1	4/30/99	
Selenium	ND	0.005		mg/L	1	4/30/99	
Silver	ND	0.005		mg/L	1	4/30/99	
Sodium	560	20		mg/L	1	4/30/99	
Thallium	ND	0.01		mg/L	1	4/30/99	
Vanadium	ND	0.005		mg/L	1	4/30/99	
Zinc	ND	0.04		mg/L	1	4/30/99	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Lab Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery
 Lab ID: 9904085-04A

Client Sample ID: 904067-04
 Tag Number:
 Collection Date: 4/14/99
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	19.5	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	91.7	5		µg/L	1	4/23/99
2-Methylphenol	ND	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	ND	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-04A

Client Sample ID: 904067-04
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	15.6	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	5.54	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	97.5	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-04A

Client Sample ID: 904067-04
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	75.1	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	23.4	43-116	S	%REC	1	4/23/99
Surr: 2-Fluorophenol	39.8	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	65.0	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	82.0	35-114		%REC	1	4/23/99
Surr: Phenol-d5	26.3	10-94		%REC	1	4/23/99

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-05A

Client Sample ID: 904067-05
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	600	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	600	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	2.9	0.1		mg/L	5	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	75	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	1070	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	100	62		mg/L	12.5	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	710	10		mg/L	1	4/19/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-05
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/14/99
Lab ID:	9904085-05A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS		SW 6010 / EPA 200.				Analyst: jph
Aluminum	10	0.14		mg/L	1	4/30/99
Antimony	ND	0.005		mg/L	1	4/30/99
Arsenic	0.017	0.005		mg/L	1	4/30/99
Barium	1.8	0.005		mg/L	1	4/30/99
Beryllium	ND	0.002		mg/L	1	4/30/99
Boron	0.29	0.01		mg/L	1	4/30/99
Cadmium	ND	0.002		mg/L	1	4/30/99
Calcium	85	0.13		mg/L	1	4/30/99
Chromium	ND	0.02		mg/L	1	4/30/99
Cobalt	0.011	0.005		mg/L	1	4/30/99
Copper	ND	0.055		mg/L	1	4/30/99
Iron	28	0.2		mg/L	1	4/30/99
Lead	0.087	0.005		mg/L	1	4/30/99
Magnesium	47	0.08		mg/L	1	4/30/99
Manganese	3.3	0.005		mg/L	1	4/30/99
Molybdenum	0.011	0.005		mg/L	1	4/30/99
Nickel	0.019	0.01		mg/L	1	4/30/99
Potassium	6.2	0.2		mg/L	1	4/30/99
Selenium	ND	0.005		mg/L	1	4/30/99
Silver	ND	0.005		mg/L	1	4/30/99
Sodium	130	20		mg/L	1	4/30/99
Thallium	ND	0.01		mg/L	1	4/30/99
Vanadium	0.02	0.005		mg/L	1	4/30/99
Zinc	0.054	0.04		mg/L	1	4/30/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-05A

Client Sample ID: 904067-05
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	ND	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	266	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Lab Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery
 Lab ID: 9904085-05A

Client Sample ID: 904067-05
 Tag Number:
 Collection Date: 4/14/99
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	14.2	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	126	5		µg/L	1	4/23/99
2-Methylphenol	ND	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	42.9	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-05A

Client Sample ID: 904067-05
Tag Number:
Collection Date: 4/14/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	83.3	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	71.6	43-116		%REC	1	4/23/99
Surr: 2-Fluorophenol	38.7	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	68.8	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	64.2	35-114		%REC	1	4/23/99
Surr: Phenol-d5	26.0	10-94		%REC	1	4/23/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-06
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/15/99
Lab ID:	9904085-06A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	ND	0.1		mg/L	1	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	120	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	1740	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	29	5		mg/L	1	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	1400	10		mg/L	1	4/22/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-06
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/15/99
Lab ID:	9904085-06A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS	SW 6010 / EPA 200.					Analyst: jph
Aluminum	2.9	0.14		mg/L	1	4/30/99
Antimony	ND	0.005		mg/L	1	4/30/99
Arsenic	0.012	0.005		mg/L	1	4/30/99
Barium	1.3	0.005		mg/L	1	4/30/99
Beryllium	ND	0.002		mg/L	1	4/30/99
Boron	0.66	0.01		mg/L	1	4/30/99
Cadmium	ND	0.002		mg/L	1	4/30/99
Calcium	150	0.13		mg/L	1	4/30/99
Chromium	ND	0.02		mg/L	1	4/30/99
Cobalt	ND	0.005		mg/L	1	4/30/99
Copper	ND	0.055		mg/L	1	4/30/99
Iron	8.8	0.2		mg/L	1	4/30/99
Lead	0.046	0.005		mg/L	1	4/30/99
Magnesium	75	0.08		mg/L	1	4/30/99
Manganese	5.8	0.005		mg/L	1	4/30/99
Molybdenum	0.0089	0.005		mg/L	1	4/30/99
Nickel	0.025	0.01		mg/L	1	4/30/99
Potassium	7.4	0.2		mg/L	1	4/30/99
Selenium	ND	0.005		mg/L	1	4/30/99
Silver	ND	0.005		mg/L	1	4/30/99
Sodium	340	20		mg/L	1	4/30/99
Thallium	ND	0.01		mg/L	1	4/30/99
Vanadium	0.011	0.005		mg/L	1	4/30/99
Zinc	ND	0.04		mg/L	1	4/30/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories **Client Sample ID:** 904067-06
Lab Order: 9904085 **Tag Number:**
Project: 904067/NMOCD/Giant Bloomfield Refinery **Collection Date:** 4/15/99
Lab ID: 9904085-06A **Matrix:** AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B				Analyst: keh
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	86.6	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	81.6	5		µg/L	1	4/23/99
2-Methylphenol	48	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	44.6	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Lab Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery
 Lab ID: 9904085-06A

Client Sample ID: 904067-06
 Tag Number:
 Collection Date: 4/15/99
 Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	ND	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	189	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-06
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/15/99
Lab ID:	9904085-06A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	71.3	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	50.8	43-116		%REC	1	4/23/99
Surr: 2-Fluorophenol	33.0	21-100		%REC	1	4/23/99
Surr: 4-Terphenyl-d14	61.4	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	54.8	35-114		%REC	1	4/23/99
Surr: Phenol-d5	24.0	10-94		%REC	1	4/23/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-07A

Client Sample ID: 904067-07
Tag Number:
Collection Date: 4/15/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ALKALINITY		EPA 310.0				Analyst: sld
Alkalinity, Bicarbonate (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	4/25/99
Alkalinity, Total (As CaCO3)	1200	5		mg/L CaCO3	1	4/25/99
BROMIDE		4500 B				Analyst: sld
Bromide	0.23	0.1		mg/L	1	4/22/99
CHLORIDE		EPA 325.3				Analyst: sld
Chloride	200	50		mg/L	100	4/26/99
CONDUCTANCE		EPA 120.1				Analyst: sld
Specific Conductance	2170	1		µmhos/cm	1	4/21/99
FLUORIDE		EPA 340.2				Analyst: sld
Fluoride	ND	0.2		mg/L	1	4/16/99
SULFATE		EPA 375.4				Analyst: sld
Sulfate	19	5		mg/L	1	4/20/99
TOTAL DISSOLVED SOLIDS		EPA 160.1				Analyst: sld
Total Dissolved Solids (Residue, Filterable)	1600	10		mg/L	1	4/22/99
MERCURY		SW 7470 / EPA 245.				Analyst: jph
Mercury	ND	0.0002		mg/L	1	4/19/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-07
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/15/99
Lab ID:	9904085-07A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS	SW 6010 / EPA 200.					Analyst: jph
Aluminum	ND	0.14		mg/L	1	4/30/99
Antimony	ND	0.005		mg/L	1	4/30/99
Arsenic	0.015	0.005		mg/L	1	4/30/99
Barium	2.1	0.005		mg/L	1	4/30/99
Beryllium	ND	0.002		mg/L	1	4/30/99
Boron	0.69	0.01		mg/L	1	4/30/99
Cadmium	ND	0.002		mg/L	1	4/30/99
Calcium	160	0.13		mg/L	1	4/30/99
Chromium	ND	0.005		mg/L	1	4/30/99
Cobalt	ND	0.005		mg/L	1	4/30/99
Copper	ND	0.055		mg/L	1	4/30/99
Iron	8.5	0.2		mg/L	1	4/30/99
Lead	0.18	0.005		mg/L	1	4/30/99
Magnesium	33	0.08		mg/L	1	4/30/99
Manganese	3.5	0.005		mg/L	1	4/30/99
Molybdenum	0.011	0.005		mg/L	1	4/30/99
Nickel	0.035	0.01		mg/L	1	4/30/99
Potassium	5.1	0.2		mg/L	1	4/30/99
Selenium	ND	0.005		mg/L	1	4/30/99
Silver	ND	0.005		mg/L	1	4/30/99
Sodium	450	20		mg/L	1	4/30/99
Thallium	ND	0.01		mg/L	1	4/30/99
Vanadium	ND	0.005		mg/L	1	4/30/99
Zinc	0.055	0.04		mg/L	1	4/30/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories **Client Sample ID:** 904067-07
Lab Order: 9904085 **Tag Number:**
Project: 904067/NMOCD/Giant Bloomfield Refinery **Collection Date:** 4/15/99
Lab ID: 9904085-07A **Matrix:** AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BNA SEMI-VOL ORGANICS, AQUEOUS		SW 8270B		Analyst: keh		
1,2,4,5-Tetrachlorobenzene	ND	5		µg/L	1	4/23/99
1,2,4-Trichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,2-Diphenylhydrazine	ND	5		µg/L	1	4/23/99
1,3-Dichlorobenzene	ND	5		µg/L	1	4/23/99
1,4-Dichlorobenzene	ND	5		µg/L	1	4/23/99
2,3,4,6-Tetrachlorophenol	ND	5		µg/L	1	4/23/99
2,4,5-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4,6-Trichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,4-Dimethylphenol	30.8	5		µg/L	1	4/23/99
2,4-Dinitrophenol	ND	10		µg/L	1	4/23/99
2,4-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2,6-Dichlorophenol	ND	5		µg/L	1	4/23/99
2,6-Dinitrotoluene	ND	5		µg/L	1	4/23/99
2-Chloronaphthalene	ND	5		µg/L	1	4/23/99
2-Chlorophenol	ND	5		µg/L	1	4/23/99
2-Methylnaphthalene	48.3	5		µg/L	1	4/23/99
2-Methylphenol	11.3	5		µg/L	1	4/23/99
2-Nitroaniline	ND	5		µg/L	1	4/23/99
2-Nitrophenol	ND	5		µg/L	1	4/23/99
2-Picoline	ND	10		µg/L	1	4/23/99
3-Methylcholanthrene	ND	5		µg/L	1	4/23/99
3-Methylphenol	ND	5		µg/L	1	4/23/99
3-Nitroaniline	ND	5		µg/L	1	4/23/99
4,6-Dinitro-2-methylphenol	ND	5		µg/L	1	4/23/99
4-Aminobiphenyl	ND	50		µg/L	1	4/23/99
4-Bromophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Chloro-3-methylphenol	ND	5		µg/L	1	4/23/99
4-Chlorophenyl phenyl ether	ND	5		µg/L	1	4/23/99
4-Methylphenol	ND	5		µg/L	1	4/23/99
4-Nitroaniline	ND	5		µg/L	1	4/23/99
4-Nitrophenol	ND	5		µg/L	1	4/23/99
7,12-Dimethylbenz(a)anthracene	ND	5		µg/L	1	4/23/99
Acenaphthene	ND	5		µg/L	1	4/23/99
Acenaphthylene	ND	5		µg/L	1	4/23/99
Acetophenone	ND	5		µg/L	1	4/23/99
Aniline	ND	5		µg/L	1	4/23/99
Anthracene	ND	5		µg/L	1	4/23/99
Benz(a)anthracene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
Lab Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
Lab ID: 9904085-07A

Client Sample ID: 904067-07
Tag Number:
Collection Date: 4/15/99
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Benzo(a)pyrene	ND	5		µg/L	1	4/23/99
Benzo(b)fluoranthene	ND	5		µg/L	1	4/23/99
Benzo(g,h,i)perylene	ND	5		µg/L	1	4/23/99
Benzo(k)fluoranthene	ND	5		µg/L	1	4/23/99
Benzyl alcohol	ND	5		µg/L	1	4/23/99
Bis(2-chloroethoxy)methane	ND	5		µg/L	1	4/23/99
Bis(2-chloroethyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-chloroisopropyl)ether	ND	5		µg/L	1	4/23/99
Bis(2-ethylhexyl)phthalate	22.7	5		µg/L	1	4/23/99
Butyl benzyl phthalate	ND	5		µg/L	1	4/23/99
Chrysene	ND	5		µg/L	1	4/23/99
Di-n-butyl phthalate	ND	5		µg/L	1	4/23/99
Di-n-octyl phthalate	ND	5		µg/L	1	4/23/99
Dibenz(a,h)anthracene	ND	5		µg/L	1	4/23/99
Dibenzofuran	ND	5		µg/L	1	4/23/99
Diethyl phthalate	ND	5		µg/L	1	4/23/99
Dimethyl phthalate	ND	5		µg/L	1	4/23/99
Ethyl methanesulfonate	ND	5		µg/L	1	4/23/99
Fluoranthene	ND	5		µg/L	1	4/23/99
Fluorene	ND	5		µg/L	1	4/23/99
Hexachlorobenzene	ND	5		µg/L	1	4/23/99
Hexachlorobutadiene	ND	5		µg/L	1	4/23/99
Hexachlorocyclopentadiene	ND	5		µg/L	1	4/23/99
Hexachloroethane	ND	5		µg/L	1	4/23/99
Indeno(1,2,3-cd)pyrene	ND	5		µg/L	1	4/23/99
Isophorone	ND	5		µg/L	1	4/23/99
Methyl methanesulfonate	ND	5		µg/L	1	4/23/99
N-Nitroso-di-n-butylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodi-n-propylamine	ND	5		µg/L	1	4/23/99
N-Nitrosodiphenylamine	ND	5		µg/L	1	4/23/99
N-Nitrosopiperidine	ND	5		µg/L	1	4/23/99
Naphthalene	81.5	5		µg/L	1	4/23/99
Nitrobenzene	ND	5		µg/L	1	4/23/99
p-Dimethylaminoazobenzene	ND	5		µg/L	1	4/23/99
Pentachlorobenzene	ND	5		µg/L	1	4/23/99
Pentachloronitrobenzene	ND	5		µg/L	1	4/23/99
Pentachlorophenol	ND	5		µg/L	1	4/23/99
Phenacetin	ND	5		µg/L	1	4/23/99
Phenanthrene	ND	5		µg/L	1	4/23/99
Phenol	ND	5		µg/L	1	4/23/99
Pyrene	ND	5		µg/L	1	4/23/99

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

Environmental Services Laboratory

Date: 06-May-99

CLIENT:	Pinnacle Laboratories	Client Sample ID:	904067-07
Lab Order:	9904085	Tag Number:	
Project:	904067/NMOCD/Giant Bloomfield Refinery	Collection Date:	4/15/99
Lab ID:	9904085-07A	Matrix:	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: 2,4,6-Tribromophenol	80.5	10-123		%REC	1	4/23/99
Surr: 2-Fluorobiphenyl	60.2	43-116		%REC	1	4/23/99
Surr: 2-Fluorophenol	19.2	21-100	S	%REC	1	4/23/99
Surr: 4-Terphenyl-d14	67.4	33-141		%REC	1	4/23/99
Surr: Nitrobenzene-d5	43.0	35-114		%REC	1	4/23/99
Surr: Phenol-d5	29.5	10-94		%REC	1	4/23/99

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	

Environmental Services Laboratory

Date: 06-May-99

QC SUMMARY REPORT

Method Blank

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

Sample ID: MBlank Batch ID: 01 ALK A-4/2 Test Code: Alkalinity Units: mg/L CaCO3 Analysis Date 4/25/99 Prep Date:
 Client ID: 9904085 Run ID: NO INST_990425A SeqNo: 10240

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Alkalinity, Bicarbonate (As CaCO3) ND 5
 Alkalinity, Carbonate (As CaCO3) ND 5
 Alkalinity, Total (As CaCO3) ND 5

Sample ID: MBlank Batch ID: 01 ALK A-4/2 Test Code: Alkalinity Units: mg/L CaCO3 Analysis Date 4/19/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990419G SeqNo: 10250

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Alkalinity, Bicarbonate (As CaCO3) ND 5
 Alkalinity, Carbonate (As CaCO3) ND 5
 Alkalinity, Total (As CaCO3) ND 5

Sample ID: MBlank Batch ID: 01 BR A-4/23 Test Code: Bromide Units: mg/L Analysis Date 4/22/99 Prep Date:

Client ID: 9904085 Run ID: HIT MAN_990422A SeqNo: 10089

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Bromide ND 0.1

Sample ID: MBlank Batch ID: 01 CL A-4/27 Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990426C SeqNo: 10436

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride ND 0.5

Qualifiers: NID - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085

QC SUMMARY REPORT

Project: 904067/NMOCD/Giant Bloomfield Refinery

Method Blank

Sample ID: MBlank Batch ID: 01 COND-04/ Test Code: E120.1 Units: µmhos/cm Analysis Date: 4/21/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990421B SeqNo: 10009

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Specific Conductance ND 1

Sample ID: MBlank Batch ID: 01 FL A-4/16/ Test Code: fluoride Units: mg/L Analysis Date: 4/16/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990416B SeqNo: 9525

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.2

Sample ID: MBlank Batch ID: 01 SULFATE Test Code: Sulfate Units: mg/L Analysis Date: 4/20/99 Prep Date:

Client ID: 9904085 Run ID: HIT MAN_990420B SeqNo: 10044

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sulfate ND 5

Sample ID: MBlank Batch ID: 01 TDS-4/23/9 Test Code: E160.1 Units: mg/L Analysis Date: 4/19/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990219E SeqNo: 10187

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera) ND 10

Sample ID: MBlank Batch ID: 01 TDS-4/23/9 Test Code: E160.1 Units: mg/L Analysis Date: 4/22/99 Prep Date:

Client ID: 9904085 Run ID: NO INST_990422D SeqNo: 10208

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera) ND 10

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Method Blank

Sample ID: MB-356 Batch ID: 356 Test Code: Mercury Units: mg/L Analysis Date 4/19/99 Prep Date: 4/19/99

Client ID: 9904085 Run ID: MERC_990419A SeqNo: 9719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND										
Mercury, Diss	ND										
Mercury, TCLP	ND										

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085

QC SUMMARY REPORT

Project: 904067/NMOCDD/Giant Bloomfield Refinery

Method Blank

Sample ID: MB-367 Batch ID: 367 Test Code: SW8270B Units: µg/L Analysis Date: 4/23/99 Prep Date: 4/20/99

Client ID: 9904085 Run ID: MANFREDD_990423B SeqNo: 10415

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4,5-Tetrachlorobenzene	ND	5									
1,2,4-Trichlorobenzene	ND	5									
1,2-Dichlorobenzene	ND	5									
1,2-Diphenylhydrazine	ND	5									
1,3-Dichlorobenzene	ND	5									
1,4-Dichlorobenzene	ND	5									
2,3,4,6-Tetrachlorophenol	ND	5									
2,4,5-Trichlorophenol	ND	5									
2,4,6-Trichlorophenol	ND	5									
2,4-Dichlorophenol	ND	5									
2,4-Dimethylphenol	ND	5									
2,4-Dinitrophenol	ND	10									
2,4-Dinitrotoluene	ND	5									
2,6-Dichlorophenol	ND	5									
2,6-Dinitrotoluene	ND	5									
2-Chloronaphthalene	ND	5									
2-Chlorophenol	ND	5									
2-Methylnaphthalene	ND	5									
2-Methylphenol	ND	5									
2-Nitroaniline	ND	5									
2-Nitrophenol	ND	5									
2-Picoline	ND	10									
3-Methylcholanthrene	ND	5									
3-Methylphenol	ND	5									
3-Nitroaniline	ND	5									
4,6-Dinitro-2-methylphenol	ND	5									
4-Aminobiphenyl	ND	50									
4-Bromophenyl phenyl ether	ND	5									
4-Chloro-3-methylphenol	ND	5									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
Method Blank

4-Chlorophenyl phenyl ether	ND	5
4-Methylphenol	ND	5
4-Nitroaniline	ND	5
4-Nitrophenol	ND	5
7,12-Dimethylbenz(a)anthracene	ND	5
Acenaphthene	ND	5
Acenaphthylene	ND	5
Acetophenone	ND	5
Aniline	ND	5
Anthracene	ND	5
Benz(a)anthracene	ND	5
Benz(a)pyrene	ND	5
Benz(b)fluoranthene	ND	5
Benz(g,h,i)perylene	ND	5
Benz(k)fluoranthene	ND	5
Benzyl alcohol	ND	5
Bis(2-chloroethoxy)methane	ND	5
Bis(2-chloroethyl)ether	ND	5
Bis(2-chloroisopropyl)ether	ND	5
Bis(2-ethylhexyl)phthalate	ND	5
Butyl benzyl phthalate	ND	5
Chrysene	ND	5
Di-n-butyl phthalate	ND	5
Di-n-octyl phthalate	ND	5
Dibenz(a,h)anthracene	ND	5
Dibenzofuran	ND	5
Diethyl phthalate	ND	5
Dimethyl phthalate	ND	5
Ethyl methanesulfonate	ND	5
Fluoranthene	ND	5
Fluorene	ND	5
Hexachlorobenzene	ND	5
Hexachlorobutadiene	ND	5

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery

QCC SUMMARY REPORT
Method Blank

Hexachlorocyclopentadiene	ND	5
Hexachloroethane	ND	5
Indeno(1,2,3-cd)pyrene	ND	5
Isophorone	ND	5
Methyl methanesulfonate	ND	5
N-Nitroso-di-n-butylamine	ND	5
N-Nitroso-n-propylamine	ND	5
N-Nitrosodiphenylamine	ND	5
N-Nitrosopiperidine	ND	5
Naphthalene	ND	5
Nitrobenzene	ND	5
p-Dimethylaminoazobenzene	ND	5
Pentachlorobenzene	ND	5
Pentachloronitrobenzene	ND	5
Pentachlorophenol	ND	5
Phenacetin	ND	5
Phenanthrene	ND	5
Phenol	ND	5
Pyrene	ND	5

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Method Blank

Sample ID: MB-371 **Batch ID:** 371 **Test Code:** ICPMET **Units:** mg/L **Analysis Date:** 4/30/99 **Prep Date:** 4/20/99
Client ID: 9904085 **Run ID:** ICP_990429A **SeqNo:** 11061

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	.1314										
Antimony	ND	0.005									
Arsenic	ND	0.005									
Barium	ND	0.005									
Beryllium	ND	0.002									
Boron	ND	0.01									
Cadmium	ND	0.002									
Calcium	.1206	0.12									
Chromium	.01527	0.015									
Cobalt	ND	0.005									
Copper	.0514	0.051									
Iron	.1502	0.15									
Lead	ND	0.005									
Magnesium	.07938	0.079									
Manganese	ND	0.005									
Molybdenum	ND	0.005									
Nickel	ND	0.08									
Potassium	ND	0.2									
Selenium	ND	0.005									
Silver	ND	0.005									
Sodium	ND	0.2									
Thallium	ND	0.01									
Vanadium	ND	0.005									
Zinc	ND	0.037									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantization limits R - RPD outside accepted recovery limits

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Work Order: 9904085

QC SUMMARY REPORT

Project: 904067/NMOCOD/Giant Bloomfield Refinery

Sample Duplicate

Sample ID: 9904055-08A DUP Batch ID: 01 ALK A-4/2 Test Code: Alkalinity Units: mg/L CaCO3 Analysis Date 4/19/99 Prep Date:

Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	150	5	0	0	0.0%	0	0	150	0.0%	20	
Alkalinity, Carbonate (As CaCO3)	ND	5	0	0	0.0%	0	0	0	0.0%	20	
Alkalinity, Total (As CaCO3)	150	5	0	0	0.0%	0	0	150	0.0%	20	

Sample ID: 9904085-05A DUP Batch ID: 01 ALK A-4/2 Test Code: Alkalinity Units: mg/L CaCO3 Analysis Date 4/25/99 Prep Date:

Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	580	5	0	0	0.0%	0	0	600	3.4%	20	
Alkalinity, Carbonate (As CaCO3)	ND	5	0	0	0.0%	0	0	0	0.0%	20	
Alkalinity, Total (As CaCO3)	580	5	0	0	0.0%	0	0	600	3.4%	20	

Sample ID: 9904085-07A DUP Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	225	50	0	0	0.0%	0	0	200	11.8%	20	

Sample ID: 9904111-04A DUP Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	75	50	0	0	0.0%	0	0	75	0.0%	20	

Qualifiers: NID - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Sample Duplicate

Sample ID: 9904085-01A DUP Batch ID: 01 COND-04/ Test Code: E120.1 Units: µmhos/cm Analysis Date: 4/21/99 Prep Date:
 Client ID: 9904085-01 Run ID: 9904085 NO INST_990421B SeqNo: 10012
 Analyte Result PQL SPK value SPK Ref Val %REC Lowlimit Highlimit RPD Ref Val %RPD RPDlimit Qual
 Specific Conductance 2280 1 0 0 0.0% 0 0 2340 2.6% 20

Sample ID: 9904055-01A DUP Batch ID: 01 FL A-4/16/ Test Code: fluoride Units: mg/L Analysis Date: 4/16/99 Prep Date:
 Client ID: 9904085 Run ID: 9904085 NO INST_990416B SeqNo: 9529
 Analyte Result PQL SPK value SPK Ref Val %REC Lowlimit Highlimit RPD Ref Val %RPD RPDlimit Qual
 Fluoride ND 0.2 0 0 0.0% 0 0 0 0.0% 20

Sample ID: 9904093-02A DUP Batch ID: 01 SULFATE Test Code: Sulfate Units: mg/L Analysis Date: 4/20/99 Prep Date:
 Client ID: 9904085 Run ID: 9904085 HIT MAN_990420B SeqNo: 10057
 Analyte Result PQL SPK value SPK Ref Val %REC Lowlimit Highlimit RPD Ref Val %RPD RPDlimit Qual
 Sulfate 176.1 120 0 0 0.0% 80 120 167.8 4.8% 20

Sample ID: 9904055-03A DUP Batch ID: 01 TDS-4/23/9 Test Code: E160.1 Units: mg/L Analysis Date: 4/19/99 Prep Date:
 Client ID: 9904085 Run ID: 9904085 NO INST_990219E SeqNo: 10192
 Analyte Result PQL SPK value SPK Ref Val %REC Lowlimit Highlimit RPD Ref Val %RPD RPDlimit Qual
 Total Dissolved Solids (Residue, Filtera) 450 10 0 0 0.0% 0 0 470 4.3% 20

Sample ID: 9904104-06A DUP Batch ID: 01 TDS-4/23/9 Test Code: E160.1 Units: mg/L Analysis Date: 4/22/99 Prep Date:
 Client ID: 9904085 Run ID: 9904085 NO INST_990422D SeqNo: 10221
 Analyte Result PQL SPK value SPK Ref Val %REC Lowlimit Highlimit RPD Ref Val %RPD RPDlimit Qual
 Total Dissolved Solids (Residue, Filtera) 480 10 0 0 0.0% 0 0 450 6.5% 20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Sample Duplicate

Sample ID: 9904067-07A DUP Batch ID: 356 Test Code: Mercury Units: mg/L Analysis Date: 4/19/99 Prep Date: 4/19/99
 Client ID: 9904085 Run ID: MERC_990419A SeqNo: 9725

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury, Diss	ND	0.0002	0	0	0.0%	0	0	0	0.0%	20	
Mercury, TCLP	ND	0.0002	0	0	0.0%	0	0	0	0.0%	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085

Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT

Sample Duplicate

Sample ID: 9904085-01A DUP Batch ID: 371 Test Code: ICPMET Units: mg/L Analysis Date: 4/30/99 Prep Date: 4/20/99
 Client ID: 904067-01 9904085 Run ID: ICP_990429A SeqNo: 11031

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.14	0	0	0.0%	0	0	0	0.0%	20	
Antimony	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Arsenic	.006317	0.005	0	0	0.0%	0	0	0.006511	3.0%	20	
Barium	2.147	0.005	0	0	0.0%	0	0	2.235	4.0%	20	
Beryllium	ND	0.002	0	0	0.0%	0	0	0	0.0%	20	
Boron	.5821	0.01	0	0	0.0%	0	0	0.6082	4.4%	20	
Cadmium	ND	0.002	0	0	0.0%	0	0	0	0.0%	20	
Calcium	164.7	0.13	0	0	0.0%	0	0	171.5	4.1%	20	
Chromium	ND	0.02	0	0	0.0%	0	0	0	0.0%	20	
Cobalt	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Copper	ND	0.055	0	0	0.0%	0	0	0	0.0%	20	
Iron	10.76	0.2	0	0	0.0%	0	0	10.8	0.4%	20	
Lead	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Magnesium	52.74	0.08	0	0	0.0%	0	0	54.9	4.0%	20	
Manganese	4.568	0.005	0	0	0.0%	0	0	4.745	3.8%	20	
Molybdenum	.01216	0.005	0	0	0.0%	0	0	0.01167	4.1%	20	
Nickel	.01262	0.01	0	0	0.0%	0	0	0	200.0%	20	
Potassium	6.22	0.2	0	0	0.0%	0	0	6.493	4.3%	20	
Selenium	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Silver	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Sodium	297.6	0.2	0	0	0.0%	0	0	511	52.8%	20	
Thallium	ND	0.01	0	0	0.0%	0	0	0	0.0%	20	
Vanadium	ND	0.005	0	0	0.0%	0	0	0	0.0%	20	
Zinc	ND	0.04	0	0	0.0%	0	0	0	0.0%	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Work Order: 9904085

QC SUMMARY REPORT

Project: 904067/NMOCD/Giant Bloomfield Refinery
 Sample Matrix Spike

Sample ID: 9904085-07A MS Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Client ID: 904067-07 9904085 Run ID: NO INST_990426C SeqNo: 10447

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 700 50 500 200 100.0% 75 125 0

Sample ID: 9904085-07A MSD Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Client ID: 904067-07 9904085 Run ID: NO INST_990426C SeqNo: 10448

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 700 50 500 200 100.0% 75 125 700 0.0% 20

Sample ID: 9904111-04A MS Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Client ID: 9904085 9904085 Run ID: NO INST_990426C SeqNo: 10471

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 575 50 500 75 100.0% 75 125 0

Sample ID: 9904111-04A MSD Batch ID: 01 CL A-4/27/ Test Code: Chloride Units: mg/L Analysis Date 4/26/99 Prep Date:

Client ID: 9904085 9904085 Run ID: NO INST_990426C SeqNo: 10472

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chloride 550 50 500 75 95.0% 75 125 575 4.4% 20

Sample ID: 9904055-01A MS Batch ID: 01 FL A-4/16/ Test Code: fluoride Units: mg/L Analysis Date 4/16/99 Prep Date:

Client ID: 9904085 9904085 Run ID: NO INST_990416B SeqNo: 9530

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 7.9 0.2 7 0 112.9% 75 125 0

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Sample Matrix Spike Duplicate

Sample ID: 9904055-01A MSD Batch ID: 01 FL A-4/16/ Test Code: fluoride Units: mg/L Analysis Date 4/16/99 Prep Date:
 Client ID: 9904085 Run ID: NO INST_990416B SeqNo: 9531
 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 8 0.2 7 0 114.3% 75 125 7.9 1.3% 20

Sample ID: 9904093-02A MS Batch ID: 01 SULFATE Test Code: Sulfate Units: mg/L Analysis Date 4/20/99 Prep Date:
 Client ID: 9904085 Run ID: HIT MAN_990420B SeqNo: 10068
 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sulfate 1127 500 800 167.8 119.9% 75 125 0

Sample ID: 9904093-02A MSD Batch ID: 01 SULFATE Test Code: Sulfate Units: mg/L Analysis Date 4/20/99 Prep Date:
 Client ID: 9904085 Run ID: HIT MAN_990420B SeqNo: 10069
 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Sulfate 1094 500 800 167.8 115.8% 75 125 1127 3.0% 20

Sample ID: 9904067-07A MS Batch ID: 356 Test Code: Mercury Units: mg/L Analysis Date 4/19/99 Prep Date: 4/19/99
 Client ID: 9904085 Run ID: MERC_990419A SeqNo: 9722
 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury .00205 0.0002 0.002 0 102.5% 75 125 0
 Mercury, Diss .00205 0.0002 0.002 0 102.5% 75 125 0
 Mercury, TCLP .00205 0.0002 0.002 0 102.5% 75 125 0

Qualifiers: NID - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
QC SUMMARY REPORT
 Sample Matrix Spike Duplicate

Sample ID: 9904067-07A MSD **Batch ID:** 356 **Test Code:** Mercury **Units:** mg/L **Analysis Date:** 4/19/99 **Prep Date:** 4/19/99

Client ID: 9904085 **Run ID:** MERC_990419A **SeqNo:** 9723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	.00205	0.0002	0.002	0	102.5%	75	125	0.00205	0.0%	20	
Mercury, Diss	.00205	0.0002	0.002	0	102.5%	75	125	0.00205	0.0%	20	
Mercury, TCLP	.00205	0.0002	0.002	0	102.5%	75	125	0.00205	0.0%	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCOD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Sample Matrix Spike

Sample ID: 9904085-01A MS Batch ID: 371 Test Code: ICPMET Units: mg/L Analysis Date: 4/30/99 Prep Date: 4/20/99
 Client ID: 904067-01 9904085 Run ID: ICP_990429A SeqNo: 11032

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.32	0.14	5	0	106.4%	80	120	5.305	0.3%	0	
Antimony	.5522	0.005	0.5	0	110.4%	80	120	0.5489	0.6%	0	
Arsenic	.4919	0.005	0.5	0.006511	97.1%	80	120	0.49	0.4%	0	
Barium	2.651	0.005	0.5	2.235	83.4%	80	120	2.644	0.3%	0	
Beryllium	.5178	0.002	0.5	0	103.6%	80	120	0.513	0.9%	0	
Boron	1.1	0.01	0.5	0.6082	98.3%	80	120	1.096	0.4%	0	
Cadmium	.4829	0.002	0.5	0	96.6%	80	120	0.4783	0.9%	0	
Calcium	167	0.13	5	171.5	-89.6%	80	120	165.8	0.7%	0	N
Chromium	.5145	0.02	0.5	0	102.9%	80	120	0.5098	0.9%	0	
Cobalt	.4779	0.005	0.5	0	95.6%	80	120	0.4755	0.5%	0	
Copper	.5775	0.005	0.5	0	115.5%	80	120	0.5758	0.3%	0	
Iron	11.27	0.2	0.5	10.8	95.2%	80	120	11.36	0.7%	0	
Lead	.4972	0.005	0.5	0	99.4%	80	120	0.4916	1.1%	0	
Magnesium	53.8	0.08	5	54.9	-22.1%	80	120	53.46	0.6%	0	N
Manganese	5.058	0.005	0.5	4.745	62.7%	80	120	5.037	0.4%	0	N
Molybdenum	.4531	0.005	0.5	0.01167	88.3%	80	120	0.4538	0.2%	0	
Nickel	.4923	0.01	0.5	0	98.5%	80	120	0.4867	1.2%	0	
Potassium	14.2	0.2	5	6.493	154.1%	80	120	14.15	0.3%	0	N
Selenium	.518	0.005	0.5	0	103.6%	80	120	0.5171	0.2%	0	
Silver	.5316	0.005	0.5	0	106.3%	80	120	0.5305	0.2%	0	
Sodium	296.5	0.2	5	511	-4289.9%	80	120	298.8	0.8%	0	
Thallium	.5283	0.01	0.5	0	105.7%	80	120	0.5247	0.7%	0	
Vanadium	.5232	0.005	0.5	0	104.6%	80	120	0.5205	0.5%	0	
Zinc	.5469	0.04	0.5	0	109.4%	80	120	0.5498	0.5%	0	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCOD/Giant Bloomfield Refinery
QC SUMMARY REPORT
 Sample Matrix Spike Duplicate

Sample ID: 9904085-01A MSD **Batch ID:** 371 **Test Code:** ICPMET **Units:** mg/L
Client ID: 904067-01 **Run ID:** ICP_990429A **Analysis Date:** 4/30/99 **Prep Date:** 4/20/99
SeqNo: 11033

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.305	0.14	5	0	106.1%	80	120	0			
Antimony	.5489	0.005	0.5	0	109.8%	80	120	0			
Arsenic	.49	0.005	0.5	0.006511	96.7%	80	120	0			
Barium	2.644	0.005	0.5	2.235	81.9%	80	120	0			
Beryllium	.513	0.002	0.5	0	102.6%	80	120	0			
Boron	1.096	0.01	0.5	0.6082	97.5%	80	120	0			
Cadmium	.4783	0.002	0.5	0	95.7%	80	120	0			
Calcium	165.8	0.13	5	171.5	-113.3%	80	120	0			N
Chromium	.5098	0.02	0.5	0	102.0%	80	120	0			
Cobalt	.4755	0.005	0.5	0	95.1%	80	120	0			
Copper	.5758	0.055	0.5	0	115.2%	80	120	0			
Iron	11.36	0.2	2	10.8	28.0%	80	120	0			N
Lead	.4916	0.005	0.5	0	98.3%	80	120	0			
Magnesium	53.46	0.08	5	54.9	-28.8%	80	120	0			N
Manganese	5.037	0.005	0.5	4.745	58.4%	80	120	0			N
Molybdenum	.4538	0.005	0.5	0.01167	88.4%	80	120	0			
Nickel	.4867	0.01	0.5	0	97.3%	80	120	0			
Potassium	14.15	0.2	5	6.493	153.1%	80	120	0			N
Selenium	.5171	0.005	0.5	0	103.4%	80	120	0			
Silver	.5305	0.005	0.5	0	106.1%	80	120	0			
Sodium	298.8	0.2	5	511	-4243.8%	80	120	0			N
Thallium	.5247	0.01	0.5	0	104.9%	80	120	0			
Vanadium	.5205	0.005	0.5	0	104.1%	80	120	0			
Zinc	.5498	0.04	0.5	0	110.0%	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QCC SUMMARY REPORT
 Laboratory Control Spike - generic

Sample ID:	Batch ID:	Test Code:	Alkalinity	Units:	mg/L CaCO3	Analysis Date	Prep Date:				
Client ID:	9904085	Run ID:	NO INST_990425A			SeqNo: 10241					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	125	5	126	0	99.2%	85	115	0			
Sample ID: LCS	Batch ID: 01 ALK A-4/2	Test Code: Alkalinity		Units: mg/L CaCO3		Analysis Date 4/19/99	Prep Date:				
Client ID:	9904085	Run ID:	NO INST_990419G			SeqNo: 10251					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	130	5	126	0	103.2%	85	115	0			
Sample ID: LCS	Batch ID: 01 BR A-4/23/	Test Code: Bromide		Units: mg/L		Analysis Date 4/22/99	Prep Date:				
Client ID:	9904085	Run ID:	HIT MAN_990422A			SeqNo: 10090					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	.531	0.1	0.6	0	88.5%	85	115	0			
Sample ID: LCS	Batch ID: 01 CL A-4/27/	Test Code: Chloride		Units: mg/L		Analysis Date 4/26/99	Prep Date:				
Client ID:	9904085	Run ID:	NO INST_990426C			SeqNo: 10437					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10	0.5	10	0	100.0%	85	115	0			
Sample ID: LCS	Batch ID: 01 CL A-4/27/	Test Code: Chloride		Units: mg/L		Analysis Date 4/26/99	Prep Date:				
Client ID:	9904085	Run ID:	NO INST_990426C			SeqNo: 10461					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.75	0.5	10	0	97.5%	85	115	10	2.5%	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
QC SUMMARY REPORT
 Laboratory Control Spike - generic

Sample ID:	LCS	Batch ID:	01 COND-04/	Test Code:	E120.1	Units:	µmhos/cm	Analysis Date:	4/21/99	Prep Date:	
Client ID:	9904085	Run ID:	NO INST_990421B	SeqNo:	10010						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	994	1	1000	0	99.4%	85	115	0			

Sample ID:	LCS	Batch ID:	01 FL A-4/16/	Test Code:	fluoride	Units:	mg/L	Analysis Date:	4/16/99	Prep Date:	
Client ID:	9904085	Run ID:	NO INST_990416B	SeqNo:	9527						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	7.8	0.2	7	0	111.4%	85	115	0			

Sample ID:	LCS	Batch ID:	01 SULFATE	Test Code:	Sulfate	Units:	mg/L	Analysis Date:	4/20/99	Prep Date:	
Client ID:	9904085	Run ID:	HIT MAN_990420B	SeqNo:	10045						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	7.36	5	8	0	92.0%	85	115	0			

Sample ID:	LCS	Batch ID:	01 TDS-4/23/9	Test Code:	E160.1	Units:	mg/L	Analysis Date:	4/19/99	Prep Date:	
Client ID:	9904085	Run ID:	NO INST_990219E	SeqNo:	10188						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	3510	10	3966	0	88.5%	85	115	0			

Sample ID:	LCS	Batch ID:	01 TDS-4/23/9	Test Code:	E160.1	Units:	mg/L	Analysis Date:	4/22/99	Prep Date:	
Client ID:	9904085	Run ID:	NO INST_990422D	SeqNo:	10209						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	3890	10	3966	0	98.1%	85	115	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 S - Spike Recovery outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits
 R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
QC SUMMARY REPORT
 Laboratory Control Spike - generic

Sample ID: LCS-356 **Batch ID:** 356 **Test Code:** Mercury **Units:** mg/L **Analysis Date:** 4/19/99
Client ID: 9904085 **Run ID:** MERC_990419A **SeqNo:** 9720 **Prep Date:** 4/19/99

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	.00103	0.0002	0.001	0	103.0%	80	120	0			
Mercury, Diss	.00103	0.0002	0.001	0	103.0%	80	120	0			
Mercury, TCLP	.00103	0.0002	0.001	0	103.0%	80	120	0			

Sample ID: LCS-367 **Batch ID:** 367 **Test Code:** SW8270B **Units:** µg/L **Analysis Date:** 4/23/99
Client ID: 9904085 **Run ID:** MANFREDD_990423B **SeqNo:** 10417 **Prep Date:** 4/20/99

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	28.4	5	50	0	56.8%	44	142	0			
1,4-Dichlorobenzene	27.7	5	50	0	55.4%	20	124	0			
2,4-Dinitrotoluene	33.8	5	50	0	67.6%	39	139	0			
2-Chlorophenol	57.3	5	100	0	57.3%	23	134	0			
4-Chloro-3-methylphenol	63.5	5	100	0	63.5%	22	147	0			
4-Nitrophenol	26.2	5	100	0	26.2%	1	132	0			
Acenaphthene	33.2	5	50	0	66.4%	47	145	0			
N-Nitrosodi-n-propylamine	32.5	5	50	0	65.0%	1	230	0			
Pentachlorophenol	65.5	5	100	0	65.5%	14	176	0			
Phenol	21	5	100	0	21.0%	5	112	0			
Pyrene	32.6	5	50	0	65.2%	52	115	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Laboratory Control Spike Duplicate

Sample ID: LCSD-367 Batch ID: 367 Test Code: SW8270B Units: µg/L Analysis Date: 4/23/99 Prep Date: 4/20/99
 Client ID: 9904085 Run ID: MANFREDD_990423B SeqNo: 10418

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	28.4	5	50	0	56.8%	44	142	28.4	0.0%	28	
1,4-Dichlorobenzene	27.5	5	50	0	55.0%	20	124	27.7	0.7%	32	
2,4-Dinitrotoluene	32.9	5	50	0	65.8%	39	139	33.8	2.7%	22	
2-Chlorophenol	56.4	5	100	0	56.4%	23	134	57.3	1.6%	29	
4-Chloro-3-methylphenol	62	5	100	0	62.0%	22	147	63.5	2.4%	37	
4-Nitrophenol	24.9	5	100	0	24.9%	1	132	26.2	5.1%	47	
Acenaphthene	32.3	5	50	0	64.6%	47	145	33.2	2.7%	28	
N-Nitrosodi-n-propylamine	31.7	5	50	0	63.4%	1	230	32.5	2.5%	55	
Pentachlorophenol	63.5	5	100	0	63.5%	14	176	65.5	3.1%	49	
Phenol	20.7	5	100	0	20.7%	5	112	21	1.4%	23	
Pyrene	32.5	5	50	0	65.0%	52	115	32.6	0.3%	25	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

CLIENT: Pinnacle Laboratories
Work Order: 9904085
Project: 904067/NMOCD/Giant Bloomfield Refinery
QC SUMMARY REPORT
 Laboratory Control Spike - generic

Sample ID: LCS-371 **Batch ID:** 371 **Test Code:** ICPMET **Units:** mg/L **Analysis Date:** 4/30/99 **Prep Date:** 4/20/99
Client ID: 9904085 **Run ID:** ICP_990429A **SeqNo:** 11060

Analyte	Result	PQL	SPK value	SPK Ret Val	%REC	LowLimit	HighLimit	RPD Ret Val	%RPD	RPDLimit	Qual
Aluminum	5.192	0.14	5	0.1314	101.2%	80	120	0			
Antimony	.5273	0.005	0.5	0	105.5%	80	120	0			
Arsenic	.4617	0.005	0.5	0	92.3%	80	120	0			
Barium	.5076	0.005	0.5	0	101.5%	80	120	0			
Beryllium	.5131	0.002	0.5	0	102.6%	80	120	0			
Boron	.4999	0.01	0.5	0	100.0%	80	120	0			
Cadmium	.4917	0.002	0.5	0	98.3%	80	120	0			
Calcium	.872	0.13	0.75	0.1206	100.2%	80	120	0			
Chromium	.5074	0.02	0.5	0.01527	98.4%	80	120	0			
Cobalt	.4819	0.005	0.5	0	96.4%	80	120	0			
Copper	.5254	0.055	0.5	0.0514	94.8%	80	120	0			
Iron	.5422	0.2	0.5	0.1502	78.4%	80	120	0			
Lead	.4961	0.005	0.5	0	99.2%	80	120	0			
Magnesium	.7833	0.08	0.75	0.07938	93.9%	80	120	0			
Manganese	.4872	0.005	0.5	0	97.4%	80	120	0			
Molybdenum	.4313	0.005	0.5	0	86.3%	80	120	0			
Nickel	.4917	0.01	0.5	0	98.3%	80	120	0			
Potassium	5.195	0.2	5	0	103.9%	80	120	0			
Selenium	.4982	0.005	0.5	0	99.6%	80	120	0			
Silver	.4974	0.005	0.5	0	99.5%	80	120	0			
Sodium	.5953	0.2	0.5	0	119.1%	80	120	0			
Thallium	.5156	0.01	0.5	0	103.1%	80	120	0			
Vanadium	.5139	0.005	0.5	0	102.8%	80	120	0			
Zinc	.5478	0.005	0.5	0	109.6%	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Continuing Calibration Verification Standard

Sample ID: ICV Batch ID: 356 Test Code: Mercury Units: mg/L Analysis Date 4/19/99 Prep Date: 4/19/99
 Client ID: 9904085 Run ID: MERC_990419A SeqNo: 9724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	.0021	0.0002	0.002	0	105.5%	90	110	0			
Mercury, Diss	.0021	0.0002	0.002	0	105.5%	90	110	0			
Mercury, TCLP	.0021	0.0002	0.002	0	105.5%	90	110	0			

Sample ID: CCV Batch ID: 367 Test Code: SW8270B Units: µg/L Analysis Date 4/23/99 Prep Date:

Client ID: 9904085 Run ID: MANFREDD_990423B SeqNo: 10416

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	53.7	5									
2,4,6-Trichlorophenol	55.4	5									
2,4-Dichlorophenol	55	5									
2-Nitrophenol	55.7	5									
4-Chloro-3-methylphenol	54.5	5									
Acenaphthene	53.8	5									
Benzo(a)pyrene	54.2	5									
Di-n-octyl phthalate	52.1	5									
Fluoranthene	55.5	5									
Hexachlorobutadiene	54.8	5									
N-Nitrosodiphenylamine	54.9	5									
Pentachlorophenol	51.1	5									
Phenol	53.5	5									
2,4,6-Tribromophenol	58	5	50	0	116.0%	80	120				
2-Fluorobiphenyl	54.9	5	50	0	109.8%	80	120				
2-Fluorophenol	54.2	5	50	0	108.4%	80	120				
4-Terphenyl-d14	54.2	5	50	0	108.4%	80	120				
Nitrobenzene-d5	49.2	5	50	0	98.4%	80	120				
Phenol-d5	53.9	5	50	0	107.8%	80	120				

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

Environmental Services Laboratory

Date: 06-May-99

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT

Initial Calibration Verification Standard

Sample ID: CCVLOW Batch ID: 371 Test Code: ICPMET Units: mg/L Analysis Date: 4/29/99 Prep Date:
 Client ID: 9904085 Run ID: ICP_990429A SeqNo: 11018

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	.5201	0.005	0.5	0	104.0%	90	110	0			
Arsenic	.5052	0.005	0.5	0	101.0%	90	110	0			
Barium	.5043	0.005	0.5	0	100.9%	90	110	0			
Beryllium	.5054	0.002	0.5	0	101.1%	90	110	0			
Cadmium	.4973	0.002	0.5	0	99.5%	90	110	0			
Chromium, 200.7	.5155	0.005	0.5	0	103.1%	95	105	0			
Cobalt	.4767	0.005	0.5	0	95.3%	90	110	0			
Copper, 200.7	.5066	0.005	0.5	0	101.3%	95	105	0			
Iron	.4837	0.01	0.5	0	96.7%	90	110	0			
Lead, 200.7	.4918	0.005	0.5	0	98.4%	95	105	0			
Manganese	.4924	0.005	0.5	0	98.5%	90	110	0			
Molybdenum	.4927	0.005	0.5	0	98.5%	90	110	0			
Nickel, 200.7	.4911	0.005	0.5	0	98.2%	95	105	0			
Potassium	5.051	0.2	5	0	101.0%	90	110	0			
Selenium	.4972	0.005	0.5	0	99.4%	90	110	0			
Silver, 200.7	.4901	0.005	0.5	0	98.0%	95	105	0			
Thallium	5.106	0.01	0.5	0	102.1%	90	110	0			
Vanadium	.5037	0.005	0.5	0	100.7%	90	110	0			
Zinc, 200.7	.4975	0.005	0.5	0	99.5%	95	105	0			

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Pinnacle Laboratories
 Work Order: 9904085
 Project: 904067/NMOCD/Giant Bloomfield Refinery

QC SUMMARY REPORT
 Minerals ICV for ICP

Sample ID: ICVHI Batch ID: 371 Test Code: ICPMET Units: mg/L Analysis Date: 4/29/99 Prep Date:
 Client ID: 9904085 Run ID: ICP_990429A SeqNo: 11019
 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	24.04	0.05	25	0	96.2%	90	110	0	
Calcium, 200.7	23.87	0.05	25	0	95.5%	95	105	0	
Hardness	156.7	0.33	165	0	94.9%	90	110	0	
Magnesium	23.57	0.05	25	0	94.3%	90	110	0	
Sodium	4.773	0.2	5	0	95.5%	90	110	0	
Tin	4.767	0.01	5	0	95.3%	90	110	0	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

Glossary of Flags

Qualifier	Description
A	Please see case narrative for information pertaining to this analyte.
AA	The sample was analyzed when the holding time for the analysis had expired.
AB	The Relative Percent Difference (RPD) between the duplicate and its associated sample was greater than 20%. A triplicate analysis was not possible due to lack of sample.
AC	Due to limited volume of sample it was not possible to analyze the standard method quality control.
AD	The hydrocarbon pattern in this sample is not typical of gasoline.
AE	The hydrocarbon pattern in this sample is not typical of diesel.
AF	The hydrocarbon pattern in this sample is not typical of oil.
AG	The hydrocarbons in this sample extend into the gasoline range.
AH	The hydrocarbons in this sample extend into the oil range.
AI	The hydrocarbons in this sample extend into the diesel range.
B	Analyte detected in associated Method Blank.
C	The Laboratory Control Sample (LCS) exceeded control limits. The Matrix Spike (MS) was in control validating the batch.
D	The Laboratory Control Sample (LCS) exceeded control limits. See case narrative for explanation.
E	Value above quantitation range. This value is considered an estimate.
F	The Laboratory Control Standard (LCS) and the LCS Duplicate (LCS/D) exceeded Relative Percent Difference (RPD) control limits. See case Narrative for explanation.
G	The Matrix Spike (MS) exceeded control limits. An instrument spike was analyzed and was in control. This indicates an interference affecting the sample preparation process.
H	The Matrix Spike (MS) and Matrix Spike Duplicate (MS/D) exceeded recovery control limits. An instrument spike was analyzed and was in control. This indicates an interference affecting the sample preparation process.
I	The Matrix Spike (MS) and Matrix Spike Duplicate (MS/D) exceeded Relative Percent Difference (RPD) control limits. See case narrative for explanation.
J	Analyte detected between the method detection limit (MDL) and the reporting limit. This value is considered an estimate.
K	The Matrix Spike (MS) and Matrix Spike Duplicate (MS/D) exceeded recovery control limits. See case narrative for explanation.
M	The Matrix Spike (MS) Exceeded control limits. The Laboratory Control Sample was in control validating the batch.
N	The Matrix Spike (MS/D) and Matrix Spike Duplicate (MS/D) recoveries is not calculable due to a high amount of analyte in the sample.
O	Detection Limits were elevated due to matrix interference.
P	The Relative Percent Difference (RPD) between the duplicate and its associated sample was greater than 20%. A triplicate was analyzed. The results of all three analysis indicate a non-homogeneous sample.
Q	The Relative Percent Difference (RPD) between the duplicate and its associated sample was greater than 20%. It was concluded through visual inspection that the sample was non-homogeneous.
R	RPD outside accepted limits. See other qualifiers or case narrative for corrective action.
S	Spike recovery outside control limits. See other qualifiers or case narrative for corrective action.
T	The Relative Percent Difference (RPD) between the duplicate and its associated sample was greater than 20%. The analyte was less than three times the reporting limit. The RPD is not applicable.
U	The Relative Percent Difference (RPD) between the analysis column and the confirmation column was greater than 40%. The higher result was reported.
V	The Relative Percent Difference (RPD) between the analysis column and the confirmation column was greater than 40%. The lower result was reported due to obvious interference.
W	Surrogate recovery outside control limits. See case narrative.
X	Unable to quantitate surrogate recoveries due to dilution of sample.
Y	The sample was provided in an improper container.
Z	The sample was received with head space.

Network Project Manager: Kimberly D. McNeill
 Pinnacle Laboratories, Inc.
 2709-D Pan American Freeway, NE
 Albuquerque, New Mexico 87107
 (505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

NUMBER OF CONTAINERS	TO-14	Gross Alpha/Beta	RADIUM 226+228	URANIUM	(625/8270) Base/Neutral Acid Compounds GC/MS	Herbicides (615/8150)	8240 (TCLP 1311) ZHE	8270 BY GC/MS	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	(625/8270) Base/Neutral Acid Compounds GC/MS	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS	
								X		X										
								X		X										
								X		X										
								X		X										
								X		X										
								X		X										
								X		X										

METALS (8) RCRA	RCRA TCLP METALS	METALS-13 PP LIST	METALS- 13 A, S, B, AS, BA, BC, B, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, TI, Zn & Hg	Gen Chemistry F ₂ , Br, Cl, SO ₄	TDS (Cond., Alk (Bicarb + Carb))	Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	(625/8270) Base/Neutral Acid Compounds GC/MS	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS	
											X										
											X										
											X										
											X										
											X										
											X										
											X										

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY:	RELINQUISHED BY:
PROJECT #: 904067	Total Number of Containers	PENSACOLA - STL-FL	Signature: [Signature]	Signature: [Signature]
PROJ. NAME: NMOCD	Chain of Custody Seals	PORTLAND - ESL-OR X	Date: 4/15/99	Date: [Date]
QC LEVEL: 10 IV	Received Intact?	STL - CT	Printed Name: K. McNeill	Printed Name: [Name]
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	STL - NEW JERSEY	Company: Pinnacle Laboratories, Inc.	Company: [Company]
TAT: STANDARD RUSH!!	LAB NUMBER: 904067	N. CREEK	RECEIVED BY: 1	RECEIVED BY: 2
DUE DATE: 4/27	COMMENTS:	BARRINGER	Signature: [Signature]	Signature: [Signature]
RUSH SURCHARGE: 0		SEQUOIA	Printed Name: [Name]	Printed Name: [Name]
CLIENT DISCOUNT:			Date: 4/16/99	Date: [Date]
SPECIAL CERTIFICATION				
REQUIRED: YES NO				

SHADED AREAS ARE FOR LAB USE ONLY. PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson
COMPANY: NM Oil Conservation Division
ADDRESS: 2040 S. Recheo
 Santa Fe, NM 87505
PHONE: (505) 827-7154
FAX: (505) 827-8177
BILL TO: Same
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID.	ANALYSIS REQUEST
9904141400 (MW-4)	4/14/99	1400	Water	01	8260 (TCL) Volatile Organics
9904141575 (RW-14)	4/14/99	1515	Water	02	8260 (Full) Volatile Organics
9904141530 (RW-15)	4/14/99	1530	Water	03	8260 (CUST) Volatile Organics
9904141615 (RW-17)	4/14/99	1615	Water	04	8260 (Landfill) Volatile Organics
9904141710 (MW-28)	4/14/99	1710	Water	05	Pesticides/PCB (608/8081/8082)
9904150900 (MW-23)	4/15/99	0900	Water	06	Herbicides (615/8151)
9904151000 (MW-9)	4/15/99	1000	Water	07	Base/Neutral/Acid Compounds GCMS (625/8270)
Trip Blank	4/13	1145	AQ	08	Polynuclear Aromatics (610/8310/8270-SIMS)

RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: ICP-6010 and Hg + Se by AA
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1

PROJECT INFORMATION

PROJ. NO.:
 PROJ. NAME: Great Bloom Field
 P.O. NO.: Retinery

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) 24hr 48hr 72hr 1 WEEK (NORMAL)

CERTIFICATION REQUIRED: NM SDWA OTHER

METHANOL PRESERVATION

COMMENTS: FIXED FEE

SAMPLE RECEIPT

NO. CONTAINERS: 50
 CUSTODY SEALS: Y/N/NA
 RECEIVED INTACT: YES
 BLUE ICE: 15°C

RELINQUISHED BY:	RELINQUISHED BY:
Signature: Bill Olson Printed Name: Bill Olson Company: NMOCD See reverse side (Force Majeure)	Signature: [Signature] Printed Name: [Name] Company: [Company]
Time: 1535 Date: 4/15/99	Time: [Time] Date: [Date]

RECEIVED BY: (LAB)
Signature: [Signature] Printed Name: [Name] Company: Pinnacle Laboratories Inc.
Time: 1535 Date: 4/15/99



**NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

NOTICE OF PUBLICATION

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal applications has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

*RE-ISSUED
BY W-PROA*

(GW-049) - EL PASO NATURAL GAS Company, Mr. Richard Duarte, P.O. Box 1492, El Paso, Texas, 79978 has submitted a renewal application for the previously approved discharge plan for their BLANCO PLANT facility located in Section 14, Township 29 North, Range 11 West, San Juan County, near Bloomfield New Mexico. Approximately 120,000 gallons per day of process waste water with a total dissolved solids concentration of less than 600 mg/l is discharged to the city of Bloomfield public owned treatment works (POTW). Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface varies in depth from 14 feet to 39 feet. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-001) Bloomfield Refining Company, Lynn Shelton, P.O. Box 159, Bloomfield, New Mexico 87413, has submitted a renewal application for the previously approved discharge plan for its Bloomfield Petroleum Refinery located in the NW/4 NE/4 and the S/2 NE/4 and the N/2 NW/4 SW/4 and the SE/4 NW/4 SW/4 and the NE/4 SW/4 of Section 26, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico. The renewal application consist of methods and procedures for handling products, waste, waste water management, and site investigation/ abatement plans. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface varies in depth from 10 feet to 30 feet and is a water zone directly caused by seepage from Hammond Ditch. The ditch water has a total dissolved solids concentration of approximately 200 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 16th day of September, 1999.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrottenbery
LORI WROTENBERY, Director

SEAL

RECEIVED

JUL 15 1999

Environmental Bureau
Oil Conservation Division

July 6, 1999

GIANT
INDUSTRIES, INC.

111 Road 4990
Bloomfield, New Mexico 87413

505
632.8006

Mr. Wayne Price
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: San Juan Refining Company, Bloomfield, New Mexico, Discharge Plan GW-1

Dear Mr. Price:

R.T. Hicks Consultants, Ltd. will hand-deliver our renewal application for Groundwater Discharge Permit number GW-1 on July 6, 1999. Our renewal application consists of two volumes:

Volume I	Discharge Plan Application, Waste and Wastewater Management
Volume II	Discharge Plan Application, Site Investigation and Abatement Plan

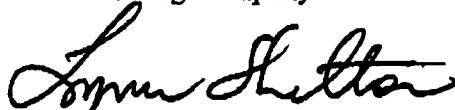
Hicks Consultants will deliver the Application in paper and electronic format. Due to the length of Volume II, NMOCD may find that information is more easily retrieved from the Adobe Acrobat file (text) or the Microsoft Excel files (tables and selected Plates).

We are confident that you will find Volume II is consistent with our earlier proposals. The environmental data developed over the past 15 years supports:

- continued removal of separate phase hydrocarbons from groundwater in the central Refinery area
- construction and maintenance of a hydraulic barrier between the San Juan River and the alluvial sediments due north of the Refinery
- monitored natural attenuation to address dissolved-phase hydrocarbons in groundwater

After we address your comments and questions regarding this Discharge Plan renewal application, we will submit a revised Corrective Measures Study (CMS) to the U.S. EPA. We will forward a copy of that document to NMOCD.

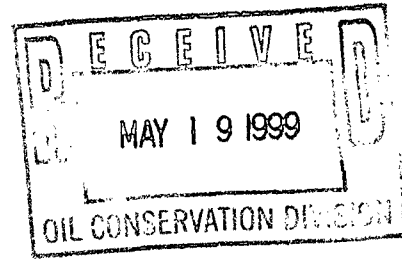
Sincerely,
Giant Refining Company



Lynn Shelton
Environmental Manager

cc: Mr. Warren Arthur, U.S. EPA, Dallas
Kim Bullerdick, Giant Industries
Ned Kendrick, Montgomery and Andrews
Randall Hicks, Hicks Consulting

GIANT
REFINING COMPANY



May 17, 1999

Wayne Price
NMOCD
2040 S. Pacheco
Santa Fe, NM 87505

Denny Foust
NMOCD
1000 Rio Brazos
Aztec, NM 87413

Re: Spill Report

REVIEWED - OK
CHECKED WITH
DISTRICT - OK
OK TO FILE!
WP
WAYNE PRICE

Gentlemen:

Giant Refining Company – Bloomfield submits the enclosed spill report regarding the January 12, 1999 release of non-hazardous wastewater at the Bloomfield facility.

Four samples were taken to verify that no release of hazardous constituents to the environment had taken place: a sample of the spill water was obtained from the spill site; a background soil sample was obtained from soil south of the bar ditch near the arroyo; a soil sample was obtained from the bottom of the arroyo where release water had flowed; and a sample of what appeared to be a seep on the north side of Sullivan Road near the Hammond Ditch.

All samples were found to be non-hazardous. Additionally, the sample taken north of Sullivan Road appears to be seepage from the Hammond Ditch. That area is still wet and seeping.

Giant proposes no further action regarding this release.

If you need additional information, please contact me at (505) 632 4168.

Sincerely,


Lynn Shelton
Environmental Manager
Giant Refining Company – Bloomfield

Enclosures

PHONE
505-632-8006
FAX
505-632-4034

111 COUNTY
ROAD 4990
BLOOMFIELD
NEW MEXICO
87413



NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-130) Giant Refining Company, Lynn Shelton, P.O. Box 159, Bloomfield, New Mexico 87413, has submitted a renewal application for the previously approved discharge plan for its Bloomfield Petroleum Refinery Class I (non-hazardous) disposal well located in the NW/4 SW/4 of Section 26, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico. Up to 2380 barrels (100,000 gallons) per day of non-hazardous refinery waste will be disposed of by injection into the Cliff House formation at a depth from 3400 to 3600 feet. The total dissolved solids concentration of the waste is approximately 15,600 mg/l. The total dissolved solids concentration of the formation fluids is approximately 25,000 mg/l. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface varies in depth from 10 feet to 30 feet and is a water zone directly caused by seepage from Hammond Ditch. The ditch water has a total dissolved solids concentration of approximately 200 mg/l. The discharge plan addresses the operation and monitoring of the well, associated surface facilities, and provides a contingency plan in the event of an accidental spill, leak and/or any other unauthorized discharge to the surface and/or sub-surface.

(GW-001) Giant Refining Company, Lynn Shelton, P.O. Box 159, Bloomfield, New Mexico 87413, has submitted a renewal application for the previously approved discharge plan for its Bloomfield Petroleum Refinery located in the NW/4 NE/4 and the S/2 NE/4 and the N/2 NW/4 SW/4 and the SE/4 NW/4 SW/4 and the NE/4 SW/4 of Section 26, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico. The renewal application consist of methods and procedures for handling products, waste, waste water management, and site investigation/ abatement plans. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface varies in depth from 10 feet to 30 feet and is a water zone directly caused by seepage from Hammond Ditch. The ditch water has a total dissolved solids concentration of approximately 200 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 22th day of September, 1999.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



LORI WROTENBERY, Director

SEAL

for

Wayne -- Roger says a
letter is in order about
replacement of this line
Due to second failure
in 2 months.

Lynn Shelton would
like a time line letter
on approved installation
of barriers at the
River before high water
flows start in May

August

Sunday	Monday	Tuesday	Wed
	1		
	DENNY - OFF		EB- SH
2	3	4	
			EB-
9	10	11	
	_____	_____	EB- DF - SA
16	17	18	
			EB-
23	24	25	
30	31		

Septem

01/14/99

Non-UIC Inspection Results:

GIANT SAN JUAN REFINERY BLOOMFIELD, MET WITH LYNN SHELTON, TRANSFER LINE FROM SOUR WATER PONDS TO EVAPORATION PONDS DEVELOPED A LEAK NEAR SULLIVAN ROAD IN THE LANDSCAPED AREA JUST NORTH OF THE NEW TRANSPORTATION OFFICES, THE NON-EXEMPT WATER RAN DOWN THE BAR DITCH TOWARDS THE EAST ON THE NORTH SIDE OF THE ROAD, FLOWING ACROSS THE ROADS SURFACE AT LEAST TWICE, FLOWED THROUGH A CULVERT TOWARDS THE RIVER AND WAS DIKED IN A WASH IN THE RIVER VALLEY L ABOUT 1/2 MILE NORTH OF RIVER. SPILL TRAVELED APPROX 1500 FEET AVG ABOUT 3' WIDE, SPILL EST AT 75 BBLs. DISCOVERED 16:00/12/99, SHUT-IN 16:20, DIKED AT 16:30. WHEN TOURING THE SITE 1/14/99 THE REPAIRED LINE WAS STILL SEEPING BECAUSE THERE WAS A SIGNIFICANT VOLUME OF WATER IN THE EXCAVATION. THE TRANSFER LINE IS RATHER THIN WALLED PVC. DIRECTED LYNN SHELTON TO RUN TOTALS OF WQCC CONTITUENTS TO DETERMINE IF SOIL REMOVAL IS NECESSARY. PLAN ON TESTING AND/OR REPLACING THE DRAIN LINE. LETTER TO FOLLOW FROM SANTA FE.

Reported to District III on 1/13/99

Afternoon

PETTY OFFICER CANCELLOR

3' WIDE BY 500 YDS.

470 489

SPILL RESPONSE NOTIFICATION FORM

Reporter's Name: SHELTON TYSON L ; Position: ENVIRO. MGR.

Last, First M.I.

Phone Numbers: Work: (505) 632-8013 ; Home: (505) 327 - 6333

Date and Time of This Notification: 1/13/99 5:05 PM MST

Notification Made To: NATIONAL RESPONSE CENTER

Facility & Owner name : Giant Refining Co.
Physical Address : #50 County Road 4990 (Sullivan Road)
Mailing Address : P.O. Box 159 Bloomfield, NM 87413
Facility Phone : (505) 632-8013

GRC Identification Numbers: FRP-06-NM-00015; EPA: NMD 089 416 416
Facility Type: Petroleum refinery; SIC Code: 2911

Were Materials Discharged? Y (Y/N) Confidential? N (Y/N)
Meeting Federal Obligation to Report? Y (Y/N) Calling for Responsible Party? Y (Y/N)

Incident Description: Source and/or Cause of Incident: PROCESS WASTE WATER TRANSPORT LINE BROKE. NON-HAZARDOUS WATER RAN INTO ARROYO EAST OF PROPERTY

Date and Time of Incident: 1615 HRS 1/12/99
Duration of Incident: 30 MINUTES
Incident Address/Location: 111 COUNTRY ROAD 4990, BLOOMFIELD, NM 87413
Medium Affected (air, water, land): LAND
Description of Medium: DRY ARROYO

Nearest City: Bloomfield State: NM County: San Juan Zip: 87413
Distance from City: Across River, 500ft. Direction from City: South
Section: 26 & 27; Township: 29 North; Range: 11 West, N.M.P.M.
Facility Latitude: 36°41' 50"; Facility Longitude: 107° 58' 20"
Container Type: ; Tank Oil Storage Capacity: gallons;
Facility Oil Storage Capacity: 32,487,000 gallons
Type of Material Discharge: TREATED REFINERY PROCESS WASTEWATER
Total Released: 3150 gallons; Amount to Waterway: 2900 gallons

Response Actions Taken to Correct, Control or Mitigate Incident:
PROCESS WASTE WATER LINE SHUT IN. ARROYO DIKED TO PREVENT ADDITIONAL RUNOFF

Impact: Number of Injuries: 0 ; Number of Deaths: 0
Were there Evacuations? NO (Y/N); Number Evacuated: N/A (Y/N)
Was there any Damage? NO (Y/N); Damage Estimate: \$

Additional Information:

Other Notifications: EPA? (Y/N) NMED (Y/N) NMOCD? YES (Y/N)
Facility Contact for Additional Information: Lynn Shelton



December 11, 1997

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

Mr. Warren Arthur (6EN-HX)
USEPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

**Re: Monthly Progress Report
EPA ID No. NMD 089416416**

**Administrative Order on Consent
U.S. EPA Docket No. VI-303-H**

Dear Mr. Arthur:

In accordance with VI.5.b. of the Order, Giant Refining Company - Bloomfield (GRC) submits this monthly progress report.

Interim Measures (IM) Progress

1. Interim Measures, including product recovery from onsite recovery wells, continues. The product recovery wells have been shut in and the pumps removed for maintenance. Additional groundwater measurements will be taken several times between now and February 1, 1998.

Corrective Measures Study (CMS)

1. GRC is still waiting for the submission of the groundwater model for this facility. An additional survey will be performed to verify the elevations of the various recovery and monitor wells.

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

A handwritten signature in cursive script that reads "Lynn Shelton".

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Roger Anderson, NMOCD
Benito Garcia, NMED

November Report

MEMORANDUM OF MEETING OR CONVERSATION

<input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Personal	Time 2:10 pm	Date 11-24-97
---	-----------------	------------------

<u>Originating Party</u>	<u>Other Parties</u>
ROBER ANDERSON, MARK ASHLEY	LYNN SWELTON - GENT BLOOMFIELD

Subject 11-4-97 LETTER FROM GENT REQUESTING DISPOSAL OF
ADV-~~W~~ROOMS SOILS ON SITE.

Discussion SOME OF THE METALS WERE WELL ABOVE WQCC.
OCD REQUESTED BACKGROUND SAMPLES.

Conclusions or Agreements LYNN PROVIDE BACKGROUND SOIL SAMPLES FOR
WQCC CONSTITUENTS. OCD WILL HOLD GENT'S REQUEST
UNTIL A COMPARISON WITH BACKGROUNDS CAN BE MADE.

Distribution _____

Signed *Mark Ashley*



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

November 17, 1997

Mr. Warren Arthur (6EN-HX)
USEPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

**Re: Monthly Progress Report
EPA ID No. NMD 089416416**

**Administrative Order on Consent
U.S. EPA Docket No. VI-303-H**

Dear Mr. Arthur:

In accordance with VI.5.b. of the Order, Giant Refining Company - Bloomfield (GRC) submits this monthly progress report.

Interim Measures (IM) Progress

1. Interim Measures, including product recovery from onsite recovery wells, continues.

Corrective Measures Study (CMS)

1. GRC continues to proceed with the groundwater model for this facility. Receipt of the model is expected at any time. GRC has selected a consulting firm, SA & B, Inc., of Phoenix, to prepare the new CMS and Human Health Risk Assessment. Additionally, Giant has performed additional pilot tests to corroborate the porosity data for this facility.

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

A handwritten signature in cursive script, appearing to read "Lynn Shelton".

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Roger Anderson, NMOCD
Benito Garcia, NMED

October Report



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

November 5, 1997

NOV - 7 1997

Mr. Roger Anderson
Environmental Bureau Chief
NMOCD
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-weekly River Terrace Report

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly river terrace report. Bi-weekly sampling continues to take place. The most recent analytical data is supposed to be delivered this week after a delay by the laboratory.

There is still no evidence of separate phase hydrocarbon in the recovery culvert. No sheen is present on the river.

If you need additional information, please contact me at (505) 632 8013.

Sincerely:

A handwritten signature in black ink, appearing to read "Lynn Shelton". The signature is fluid and cursive, written over a white background.

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: Denny Foust, NMOCD, Aztec
Greg Lyssy, USEPA, Region VI
Steve Pullen, NMED

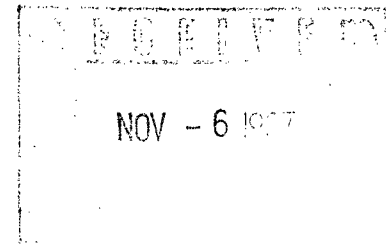


November 4, 1997

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

Mr. Mark Ashley
NMOCD
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Disposal of Non-Hazardous Soils On Site
GW-001 San Juan County



Dear Mr. Ashley:

Giant Refining Company - Bloomfield is submitting a request to use as "fill" dirt, in an area that is to be developed for construction, three soil piles that we have on site.

Specifically, the three soil piles are: the soil delisted by the EPA and currently stored on the east end of the refinery; the soil that was removed from the river terrace area by excavation last November and currently stored on plastic near Tank 2; and the soil and solids removed from the north lined evaporation lagoon.

The delisted soil will be used to fill in a low lying area near the refinery's naphtha loading rack to enhance stormwater management (see attached drawing). The river terrace soil and the soil and solids from the evaporation lagoon will be used as fill in the south unlined evaporation lagoon (see drawing). This lagoon will eventually be partially filled to provide room for future construction projects.

Samples were obtained from the river terrace soil on April 8, 1997 and were analyzed for TCLP parameters. A copy of that analytical data was submitted to the OCD, Santa Fe on May 2, 1997. Samples of the soil and solids from the lined evaporation lagoon were obtained on August 14, 1997 and were also analyzed for TCLP parameters. A copy of that analytical data is enclosed. The soil delisted by the EPA was sampled in 1991 and 1992 and was determined to be non-hazardous, and is documented in the RFI report that was submitted to the OCD.

WQCC analysis was performed on samples collected from each of the three soil piles on August 20, 1997. A copy of that analytical data is enclosed for your review. Please note that additional reporting limits were added to the WQCC data to reflect the "twenty times" rule of thumb that was suggested by the OCD for WQCC analysis (which is for water or liquids) to compensate for the samples being solids.

All three soil piles are below WQCC standards (except as described below) and, as such, seem suitable for the disposal methods described above. WQCC standards were exceeded as follows:

1/11/00

0700
1200
210

Parameter	River Soil	Delisted Soil	Evap Pond	WQCC
✓ Aluminum	5,600	8,200	4,000	400 ppm
✓ Iron	8,700	13,000	5,700	200 ppm
✓ Managanese	240	310	190	20 ppm
Zinc	160	---	---	40 ppm
Copper	40	---	---	20 ppm
Chloride	380	29	43,000	40,000 ppm
Sulfate	8,000	1800	7,800	4,000 ppm

.2 ppm
250 ppm
600 ppm

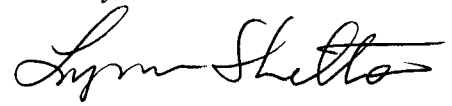
11/11/00

Giant submits that the metals reported above are consistent with naturally occurring background levels for those metals. Giant also proposes to dispose of the river soil and evap pond soil as described above even though sulfates exceed WQCC levels in both samples and chlorides exceeded WQCC levels in the river soil because those soils will be overlain with additional clean "fill" soil, thereby effectively providing a soil cap that will minimize potential migration of those constituents.

Giant also submits that these disposal activities present an economical and effective method for disposal of these soils and that the disposal activities also represent a one time "beneficial use" of these soil piles.

Thank you for your consideration of this proposal. If you need additional information please contact me at (505) 632 8013.

Sincerely:



Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosures

cc: Denny Foust, NMOCD Aztec

cc w/o enclosures: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator



PARAGON ANALYTICS, INC.

225 Commerce Drive ♦ Fort Collins, CO 80524 ♦ (800) 443-1511 ♦ (970) 490-1511 ♦ FAX (970) 490-1522

September 5, 1997

Mr. Lynn Shelton
Giant Refining Company
#50 County Road 4990/PO Box 159
Bloomfield, NM 87413

RE: Paragon Workorder: 97-08-205
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Mr. Shelton:

One solid and three water samples were received from Giant Refining Company on August 18, 1997. The samples were scheduled for the following analyses:

GC/MS Semivolatiles	pages 1-7
GC/MS Volatiles	pages 1-7
TCLP Pesticides	pages 1-7
TCLP Herbicides	pages 1-7
TCLP Metals	pages 1-7
Aromatic Volatile Organics	pages 1-9

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Victoria Bayly
Project Manager

VB/jjc
Enclosure: Report



Paragon Analytics, Inc.

Aromatic Volatile Organics Case Narrative

Giant Refining Company

Order Number - 9708205

1. This report consists of 3 water samples received by Paragon on 08/18/97.
2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water samples were prepared by heating and purging 5 mls using purge and trap procedures based on Method 5030. The calibration curve was also prepared using the heated purge.
3. The samples were analyzed using a GC with a DB-624 capillary column and a PID detector according to protocols based on SW-846 Method 8020. All positive results were quantitated using the responses from the initial calibration curve using the internal standard technique. Second column confirmation was performed on all samples with positive results on a DB-VRX capillary column.
4. All samples were analyzed within the established holding times except sample 9708205-1 which was received by Paragon after the holding time had lapsed.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.
7. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.
8. All surrogate recoveries were within acceptance criteria.
9. All internal standard recoveries were within acceptance criteria.



10. Due to high levels of non-target analytes sample 9708205-3 was analyzed at a higher dilution. The reporting limits have been adjusted accordingly.
11. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mark R. Hayes

Mark R. Hayes
Fuels Chemist

9-4-97
Date

RR
Reviewer's Initials

9-5-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: WRB1 08/21/97

Date Collected: N/A
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
M,P-Xylene	ND	1.0
O-Xylene	ND	0.50
Total Xylenes	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

River-B (7/31)

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-1

Date Collected: 7/31/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	0.72	0.50
Toluene	ND	0.50
Ethylbenzene	1.1	0.50
M,P-Xylene	3.9	1.0
O-Xylene	1.1	0.50
Total Xylenes	5.0	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

River-B (8/12)

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-2

Date Collected: 8/12/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	0.56	0.50
Toluene	ND	0.50
Ethylbenzene	1.0	0.50
M,P-Xylene	3.9	1.0
O-Xylene	1.0	0.50
Total Xylenes	5.0	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS BLANK SPIKE

Method 8020

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Date Extracted: 8/21/97
 Date Analyzed: 8/21/97

Lab Sample ID: WBS1 08/21/97

Sample Matrix: Water

Sample Volume: 5 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Benzene	40.0	45.2	113	85 - 115
Toluene	40.0	43.1	108	85 - 115
Ethylbenzene	40.0	43.4	108	85 - 115
M,P-Xylene	80.0	86.9	109	85 - 115
O-Xylene	40.0	43.3	108	85 - 115
Total Xylenes	120	130	109	85 - 115

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	45.9	115	2	20
Toluene	40.0	44.1	110	2	20
Ethylbenzene	40.0	43.8	109	1	20
M,P-Xylene	80.0	87.5	109	1	20
O-Xylene	40.0	43.9	110	1	20
Total Xylenes	120	131	110	1	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits	
2,3,4-Trifluorotoluene	99	98	88 - 119	

D = Detected

AROMATIC VOLATILE ORGANICS MATRIX SPIKE

Method 8020

Sample ID

River-B (8/12)

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Date Collected: 8/12/97
 Date Extracted: 8/21/97
 Date Analyzed: 8/21/97

Lab Sample ID: 9708205-2MS

Sample Matrix: Water

Sample Volume: 5 mL
 Dilution Factor: 1

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery	QC Limits % Rec
Benzene	40.0	0.56	46.7	115	85 - 115
Toluene	40.0	ND	44.0	110	85 - 115
Ethylbenzene	40.0	1.03	44.5	109	85 - 115
M,P-Xylene	80.0	3.93	91.0	109	85 - 115
O-Xylene	40.0	1.03	44.4	108	85 - 115
Total Xylenes	120	4.96	135	109	85 - 115

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	45.4	112	3	20
Toluene	40.0	42.7	107	3	20
Ethylbenzene	40.0	42.8	104	4	20
M,P-Xylene	80.0	87.2	104	4	20
O-Xylene	40.0	42.6	104	4	20
Total Xylenes	120	130	104	4	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,3,4-Trifluorotoluene	97	97	88 - 119

ND = Not Detected

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

NOWP-E

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-3

Date Collected: 8/14/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 5

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	ND	2.5
Toluene	ND	2.5
Ethylbenzene	ND	2.5
M,P-Xylene	ND	5.0
O-Xylene	ND	2.5
Total Xylenes	ND	5.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	95	88 - 119

ND = Not Detected at or above client requested reporting limit.



Paragon Analytics, Inc.

GC/MS Semivolatiles Case Narrative

Giant Refining Company

Order Number - 9708205

1. This report consists of 1 soil sample received by Paragon on August 18, 1997.
2. This sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the sample was tumbled by Method 1311. This TCLP leachate was then extracted using continuous liquid-liquid extractors, based on Method 3520.
3. The sample was analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270B for TCLP compounds only. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. The sample was analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. The matrix spike was performed on an in house sample. All matrix spike recoveries were within acceptance criteria.
7. All blank spike and blank spike duplicate recoveries were within the acceptance criteria.
8. All surrogate recoveries were within acceptance criteria.
9. All internal standard recoveries were within acceptance criteria.



10. All initial calibration criteria were within acceptance criteria. Method 8270B states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve that was analyzed on August 13, and 14, 1997, were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Daved F. Reid

Daved F. Reid
Organic Chemist

8-29-97

Date

CB-gd

Reviewer's Initials

8.29.97

Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

Semi-volatile Organics by GC/MS

Method SW8270--TCLP Leachate

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708205

Client Name: Giant Refining Company

ClientProject ID: Not Submitted

Reported on: Thursday, August 28, 1997

Field ID: LABQC	Sample Matrix: liquid	Date Collected: 22-Aug-97	Sample Aliquot: 100
Lab ID: L-082297MB	% Moisture: N/A	Date Extracted: 22-Aug-97	Final Volume: 1
	Cleanup Method: NONE	Date Analyzed: 25-Aug-97	Dilution: 1
	Report Basis: NA	Prep Batch: sv08087b1	LEACH DATE: 8/21/97

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
110-86-1	PYRIDINE	0.1	mg/l	0.1	U	
106-46-7	1,4-DICHLOROBENZENE	0.1	mg/l	0.1	U	
95-48-7	2-METHYLPHENOL	0.1	mg/l	0.1	U	
108-39-4	3+4-METHYLPHENOL	0.1	mg/l	0.1	U	
67-72-1	HEXACHLOROETHANE	0.1	mg/l	0.1	U	
98-95-3	NITROBENZENE	0.1	mg/l	0.1	U	
87-68-3	HEXACHLOROBUTADIENE	0.1	mg/l	0.1	U	
88-06-2	2,4,6-TRICHLOROPHENOL	0.1	mg/l	0.1	U	
95-95-4	2,4,5-TRICHLOROPHENOL	0.5	mg/l	0.5	U	
121-14-2	2,4-DINITROTOLUENE	0.1	mg/l	0.1	U	
118-74-1	HEXACHLOROBENZENE	0.1	mg/l	0.1	U	
87-86-5	PENTACHLOROPHENOL	0.5	mg/l	0.5	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0.445	mg/l	0.75	59	23 - 100
321-60-8	2-FLUOROBIPHENYL	0.278	mg/l	0.5	56	21 - 106
367-12-4	2-FLUOROPHENOL	0.403	mg/l	0.75	54	21 - 100
4165-60-0	NITROBENZENE-D5	0.248	mg/l	0.5	50	34 - 111
13127-88-3	PHENOL-D5	0.421	mg/l	0.75	56	15 - 104
1718-51-0	TERPHENYL-D14	0.29	mg/l	0.5	58	33 - 111

U = Less than the Reporting Limit

Semi-volatile Organics by GC/MS

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708205

Client Name: Giant Refining Company

Client Project ID: Not Submitted

Reported on: Friday, August 29, 1997

Field ID: Pond Sludge
Lab ID: 9708205-4

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 14-Aug-97
Date Extracted: 22-Aug-97
Date Analyzed: 26-Aug-97
Prep Batch: sv08205

Sample Aliquot: 100
Final Volume: 1
Dilution: 1
LEACH DATE: 8/21/97

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
110-86-1	PYRIDINE	0.1	mg/l	0.1	U	
106-46-7	1,4-DICHLOROBENZENE	0.1	mg/l	0.1	U	
95-48-7	2-METHYLPHENOL	0.1	mg/l	0.1	U	
108-39-4	3+4-METHYLPHENOL	0.1	mg/l	0.1	U	
67-72-1	HEXACHLOROETHANE	0.1	mg/l	0.1	U	
98-95-3	NITROBENZENE	0.1	mg/l	0.1	U	
87-68-3	HEXACHLOROBUTADIENE	0.1	mg/l	0.1	U	
88-06-2	2,4,6-TRICHLOROPHENOL	0.1	mg/l	0.1	U	
95-95-4	2,4,5-TRICHLOROPHENOL	0.5	mg/l	0.5	U	
121-14-2	2,4-DINITROTOLUENE	0.1	mg/l	0.1	U	
118-74-1	HEXACHLOROBENZENE	0.1	mg/l	0.1	U	
87-86-5	PENTACHLOROPHENOL	0.5	mg/l	0.5	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0.542	mg/l	0.75	72	23 - 100
321-60-8	2-FLUOROBIPHENYL	0.269	mg/l	0.5	54	21 - 106
367-12-4	2-FLUOROPHENOL	0.403	mg/l	0.75	54	21 - 100
4165-60-0	NITROBENZENE-D5	0.259	mg/l	0.5	52	34 - 111
13127-88-3	PHENOL-D5	0.448	mg/l	0.75	60	15 - 104
1718-51-0	TERPHENYL-D14	0.503	mg/l	0.5	101	33 - 111

U = Less than the Reporting Limit

Semi-volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708205

Client Name: Giant Refining Company

ClientProject ID: Not Submitted

Reported on: Thursday, August 28, 1997

BS ID: L-082297LCS

BSD ID: L-082297LCSD

Sample Matrix: liquid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: N/A

Date Collected: 22-Aug-97

Date Extracted: 22-Aug-97

Date Analyzed: 25-Aug-97

Prep Batch: sv08087b1

Sample Aliquot: 100

Final Volume: 1

Dilution: 1

LEACH DATE: 8/21/97

CASNO	Target Analyte	Spike Added	BS Result	Units	Reporting Limit	BS % Rec.	Control Limits
110-86-1	PYRIDINE	0.5	0.184	mg/l	0.1	37	1 - 83
106-46-7	1,4-DICHLOROBENZENE	0.5	0.215	mg/l	0.1	43	12 - 88
95-48-7	2-METHYLPHENOL	1	0.507	mg/l	0.1	51	21 - 97
108-39-4	3+4-Methylphenol	2	0.98	mg/l	0.1	49	29 - 92
67-72-1	HEXACHLOROETHANE	0.5	0.192	mg/l	0.1	38	18 - 83
98-95-3	NITROBENZENE	0.5	0.22	mg/l	0.1	44	14 - 105
87-68-3	HEXACHLOROBUTADIENE	0.5	0.188	mg/l	0.1	38	16 - 82
88-06-2	2,4,6-TRICHLOROPHENOL	1	0.543	mg/l	0.1	54	24 - 84
95-95-4	2,4,5-TRICHLOROPHENOL	1	0.607	mg/l	0.5	61	19 - 96
121-14-2	2,4-DINITROTOLUENE	0.5	0.235	mg/l	0.1	47	1 - 104
118-74-1	HEXACHLOROBENZENE	0.5	0.256	mg/l	0.1	51	22 - 101
87-86-5	PENTACHLOROPHENOL	1	0.657	mg/l	0.5	66	22 - 111

Semi-volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708205

Client Name: Giant Refining Company

ClientProject ID: Not Submitted

Reported on: Thursday, August 28, 1997

CASNO	Target Analyte	Spike Added	BSD Result	Units	Reporting Limit	BSD % Rec.	RPD	RPD Limits
110-86-1	PYRIDINE	0.5	0.171	mg/l	0.1	34	8	50
106-46-7	1,4-DICHLOROBENZENE	0.5	0.233	mg/l	0.1	47	9	50
95-48-7	2-METHYLPHENOL	1	0.586	mg/l	0.1	59	15	50
108-39-4	3+4-Methylphenol	2	1.16	mg/l	0.1	58	17	50
67-72-1	HEXACHLOROETHANE	0.5	0.217	mg/l	0.1	43	12	50
98-95-3	NITROBENZENE	0.5	0.264	mg/l	0.1	53	19	50
87-68-3	HEXACHLOROBUTADIENE	0.5	0.217	mg/l	0.1	43	12	50
88-06-2	2,4,6-TRICHLOROPHENOL	1	0.648	mg/l	0.1	65	18	50
95-95-4	2,4,5-TRICHLOROPHENOL	1	0.714	mg/l	0.5	71	15	50
121-14-2	2,4-DINITROTOLUENE	0.5	0.281	mg/l	0.1	56	17	50
118-74-1	HEXACHLOROBENZENE	0.5	0.308	mg/l	0.1	62	19	50
87-86-5	PENTACHLOROPHENOL	1	0.824	mg/l	0.5	82	22	50

Surrogate Recovery BS/BSD

CASNO	Target Analyte	Spike Added	BS % Rec.	BSD % Rec.	RPD	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0.75	54	62	14	23 - 100
321-60-8	2-FLUOROBIPHENYL	0.5	53	58	9	21 - 106
367-12-4	2-FLUOROPHENOL	0.75	50	55	10	21 - 100
4165-60-0	NITROBENZENE-D5	0.5	49	56	13	34 - 111
13127-88-3	PHENOL-D5	0.75	51	56	9	15 - 104
1718-51-0	TERPHENYL-D14	0.5	58	66	13	33 - 111



Paragon Analytics, Inc.

GC/MS Volatiles Case Narrative

Giant Refining Company

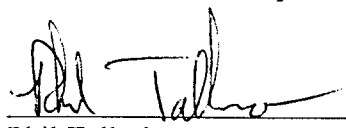
Order Number - 9708205

1. This report consists of 1 solid sample received by Paragon on 08-18-97.
2. The sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the sample was leached using the TCLP ZHE extraction procedure specified in Method 1311. The TCLP leachate was then analyzed by purging the sample using purge and trap procedures based on Method 5030.
3. The sample was analyzed using GC/MS with a RTX-624 capillary column according to protocols based on SW-846 Method 8260. All positive results were quantitated with the average response of the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. The sample was analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All matrix spike recoveries were within acceptance criteria.
7. All blank spike and blank spike duplicate recoveries were within the acceptance criteria.
8. All surrogate recoveries were within acceptance criteria.
9. All internal standard recoveries were within acceptance criteria.



10. All initial and continuing calibration criteria were within acceptance criteria. Method 8260 states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Phil Tallarico
GC/MS Analyst

8-27-97

Date



Reviewer's Initials

8-27-97

Date

TCLP VOLATILE ORGANICS

Method 8260

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: VBLK01 08-25-97

Date Collected: N/A
 Date Extracted: N/A
 Date Analyzed: 08-25-97

Sample Matrix: Water
 Sample Volume: 5 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.01
D029	1,1-Dichloroethene	75-35-4	ND	0.01
D022	Chloroform	67-66-3	ND	0.01
D028	1,2-Dichloroethane	107-06-2	ND	0.01
D035	Methyl ethyl ketone	78-93-3	ND	0.01
D019	Carbon tetrachloride	56-23-5	ND	0.01
D040	Trichloroethene	79-01-6	ND	0.01
D018	Benzene	71-43-2	ND	0.01
D039	Tetrachloroethene	127-18-4	ND	0.01
D021	Chlorobenzene	108-90-7	ND	0.01

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	91	85-115
Toluene-d8	90	88-110
Bromofluorobenzene	97	85-115

ND = Not Detected

TCLP VOLATILE ORGANICS

Method 8260

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: TCLPRB1 08-21-97

Sample Matrix: TCLP Leachate
 Sample Volume: 1.0 mL

Sample ID

TCLP Reagent Blank

Date Collected: N/A
 Date Extracted: 08-21-97
 Date Analyzed: 08-25-97

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.05
D029	1,1-Dichloroethene	75-35-4	ND	0.05
D022	Chloroform	67-66-3	ND	0.05
D028	1,2-Dichloroethane	107-06-2	ND	0.05
D035	Methyl ethyl ketone	78-93-3	ND	0.05
D019	Carbon tetrachloride	56-23-5	ND	0.05
D040	Trichloroethene	79-01-6	ND	0.05
D018	Benzene	71-43-2	ND	0.05
D039	Tetrachloroethene	127-18-4	ND	0.05
D021	Chlorobenzene	108-90-7	ND	0.05

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	94	85-115
Toluene-d8	101	88-110
Bromofluorobenzene	103	85-115

ND = Not Detected

TCLP VOLATILE ORGANICS

Method 8260

Sample ID

Pond Sludge

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: 9708205-4

Date Collected: 08-14-97
 Date Extracted: 08-21-97
 Date Analyzed: 08-25-97

Sample Matrix: TCLP Leachate
 Sample Volume: 1.0 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.05
D029	1,1-Dichloroethene	75-35-4	ND	0.05
D022	Chloroform	67-66-3	ND	0.05
D028	1,2-Dichloroethane	107-06-2	ND	0.05
D035	Methyl ethyl ketone	78-93-3	ND	0.05
D019	Carbon tetrachloride	56-23-5	ND	0.05
D040	Trichloroethene	79-01-6	ND	0.05
D018	Benzene	71-43-2	ND	0.05
D039	Tetrachloroethene	127-18-4	ND	0.05
D021	Chlorobenzene	108-90-7	ND	0.05

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	96	85-115
Toluene-d8	105	88-110
Bromofluorobenzene	100	85-115

ND = Not Detected

TCLP VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: 9708188-2

Sample ID

In House

Date Collected: 08-13-97
 Date Extracted: 08-21-97
 Date Analyzed: 08-25-97

Sample Matrix: TCLP Leachate
 Sample Volume: 1.0 mL

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS % Rec	QC Limit Recovery
Vinyl chloride	0.100	ND	0.094	94	49 - 132
1,1-Dichloroethene	0.100	ND	0.099	99	65 - 126
Methyl ethyl ketone	0.100	ND	0.110	110	68 - 123
Chloroform	0.100	ND	0.101	101	61 - 122
Carbon tetrachloride	0.100	ND	0.098	98	26 - 156
1,2-Dichloroethene	0.100	ND	0.106	106	80 - 113
Benzene	0.100	ND	0.102	102	81 - 108
Trichloroethene	0.100	ND	0.091	91	60 - 129
Tetrachloroethene	0.100	ND	0.097	97	75 - 116
Chlorobenzene	0.100	ND	0.102	102	81 - 107

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	102	86 - 118
Toluene-d8	100	88 - 110
Bromofluorobenzene	100	86 - 115

ND = Not Detected

TCLP VOLATILE BLANK SPIKE RECOVERY

Method 8260

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: BS1,2 08-25-97

Sample ID

Blank Spike

Date Collected: N/A
 Date Extracted: N/A
 Date Analyzed: 08-25-97

Sample Matrix: Water
 Sample Volume: 5 mL

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	BS Concentration (mg/L)	BS % Rec	QC Limit Recovery
Vinyl chloride	0.020	N/A	0.020	100	49 - 132
1,1-Dichloroethene	0.020	N/A	0.020	100	65 - 126
Methyl ethyl ketone	0.020	N/A	0.020	100	68 - 123
Chloroform	0.020	N/A	0.020	101	61 - 122
Carbon tetrachloride	0.020	N/A	0.021	107	26 - 156
1,2-Dichloroethene	0.020	N/A	0.023	116	80 - 113
Benzene	0.020	N/A	0.021	105	81 - 108
Trichloroethene	0.020	N/A	0.023	113	60 - 129
Tetrachloroethene	0.020	N/A	0.021	104	75 - 116
Chlorobenzene	0.020	N/A	0.022	109	81 - 107

Compound	Spike Added (µg/L)	BS2 Concentration (µg/L)	BS2 % REC	RPD	QC Limit REC
Vinyl chloride	0.020	0.020	100	1	49-132
1,1-Dichloroethene	0.020	0.020	101	0	65-126
Methyl ethyl ketone	0.020	0.020	98	1	68-130
Chloroform	0.020	0.020	101	1	61-122
Carbon tetrachloride	0.020	0.021	107	1	26-156
1,2-Dichloroethene	0.020	0.020	98	17	80-113
Benzene	0.020	0.020	99	6	81-108
Trichloroethene	0.020	0.022	111	2	60-129
Tetrachloroethene	0.020	0.021	104	0	75-116
Chlorobenzene	0.020	0.022	109	0	81-107

SURROGATE RECOVERIES

Analyte	BS1 % Recovery	BS2 % Recovery	% Rec Limits
Dibromofluoromethane	96	99	86 - 118
Toluene-d8	100	98	88 - 110
Bromofluorobenzene	103	100	86 - 115

N/A = Non Applicable



Paragon Analytics, Inc.

TCLP Pesticides Case Narrative

Giant Refining Company

Order Number - 9708205

1. This report consists of 1 solid sample received by Paragon on 08/18/97.
2. This sample was extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the solid sample was processed through leaching procedures based on Method 1311. The leachate was extracted using continuous liquid-liquid extractors, based on Method 3520.
3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTX-1701 capillary column according to protocols based on Method 8081. All positive results were then confirmed on a RTX-50 column. The quantitation of each analyte is taken from the primary column unless interferences were encountered, in which case the secondary column was used.
4. All samples were extracted and analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All blank spike recoveries were within the acceptance criteria.
7. All matrix spike criteria were met with the following exceptions.

Spike Compound	Sample	Criteria
9708205-4MS	Methoxychlor	% Recovery

The recovery of this compound in the blank spike was within control limits, which demonstrated the spike outlier in the matrix spike was due to matrix effects, so no further action is needed.



8. All surrogate recoveries were within acceptable limits with the following exceptions;

Sample	Surrogate	Sample	Surrogate
9708205-4	DCB	9708205-4MS	DCB

The method states that one surrogate is allowed to be outside acceptance criteria without further action.

9. All initial calibration criteria were within acceptance criteria. The continuing calibrations exceeded the acceptance criteria in the following manner:

CCV #1 - Methoxychlor was out high on both columns. Heptachlor, Endrin and DCB were out high on the secondary column.

CCV #2 - Heptachlor, Endrin and DCB were out high on the secondary column.

Because the sensitivity of the instrument increased for these compounds and no targets were found, no further action was taken. The reporting limits are supported.

10. The percent breakdown criteria for Endrin, 4,4'-DDT and the combined breakdown met acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Marty D. Brown
Marty Brown
GC Analyst

8-26-97
Date

RRB
Reviewer's Initials

8-27-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

TCLP ORGANOCHLORINE PESTICIDES

Method 8081

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Sample ID

TCLP Blank

Lab Sample ID: RB1 08/22/97

Date Collected: N/A
 Date Leached: 8/21/97
 Date Extracted: 8/22/97
 Date Analyzed: 8/26/97

Sample Matrix: TCLP Leachate
 Cleanup: N/A

Sample Volume: 100 mL
 Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D013	gamma - BHC (Lindane)	58-89-9	ND	0.00050
D031	Heptachlor/Heptachlor Epoxide	76-44-8	ND	0.0010
D012	Endrin	72-20-8	ND	0.0010
D014	Methoxychlor	72-43-5	ND	0.0050
D020	Chlordane (technical)	37-74-9	ND	0.0050
D015	Toxaphene	8001-35-2	ND	0.050

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	106	44 - 131
Decachlorobiphenyl	69	48 - 143

ND = Not Detected at or above reporting limits.

TCLP ORGANOCHLORINE PESTICIDES

Method 8081

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Sample ID

Pond Sludge

Lab Sample ID: 9708205-4

Date Collected: 8/14/97
 Date Leached: 8/21/97
 Date Extracted: 8/22/97
 Date Analyzed: 8/26/97

Sample Matrix: TCLP Leachate
 Cleanup: N/A

Sample Volume: 100 mL
 Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D013	gamma - BHC (Lindane)	58-89-9	ND	0.00050
D031	Heptachlor/Heptachlor Epoxide	76-44-8	ND	0.0010
D012	Endrin	72-20-8	ND	0.0010
D014	Methoxychlor	72-43-5	ND	0.0050
D020	Chlordane (technical)	37-74-9	ND	0.0050
D015	Toxaphene	8001-35-2	ND	0.050

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	66	44 - 131
Decachlorobiphenyl	32 *	48 - 143

ND = Not Detected at or above reporting limits.

TCLP ORGANOCHLORINE PESTICIDE BLANK SPIKE

Method 8081

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Sample ID

Blank Spike

Date Leached: 8/21/97
 Date Extracted: 8/22/97
 Date Analyzed: 8/26/97

Lab Sample ID: BS1 08/22/97

Sample Matrix: TCLP Leachate
 Cleanup: N/A

Sample Volume: 100 mL
 Final Volume: 10 mL

Analyte	Spike Added (mg/L)	BS Concentration (mg/L)	BS Percent Recovery	QC Limits % Rec
gamma - BHC (Lindane)	0.0040	0.0043	109	78 - 126
Heptachlor	0.0040	0.0047	118	59 - 145
Endrin	0.0040	0.0051	126	77 - 134
Methoxychlor	0.0040	0.0050	125	50 - 150

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery MS	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	108	44 - 131
Decachlorobiphenyl	69	48 - 143

ND = Not Detected

TCLP ORGANOCHLORINE PESTICIDE MATRIX SPIKE

Method 8081

Sample ID

Pond Sludge

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Date Collected: 8/14/97
 Date Leached: 8/21/97
 Date Extracted: 8/22/97
 Date Analyzed: 8/26/97

Lab Sample ID: 9708205-4MS

Sample Volume: 100 mL
 Final Volume: 10 mL

Sample Matrix: TCLP Leachate
 Cleanup: N/A

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	QC Limits % Rec
gamma - BHC (Lindane)	0.0040	ND	0.0032	81	78 - 126
Heptachlor	0.0040	ND	0.0026	65	59 - 145
Endrin	0.0040	ND	0.0045	112	77 - 134
Methoxychlor	0.0040	ND	0.0017	43 *	50 - 150

SURROGATE RECOVERY

Analyte	% Recovery MS	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	66	44 - 131
Decachlorobiphenyl	37 *	48 - 143

ND = Not Detected



Paragon Analytics, Inc.

TCLP Herbicides Case Narrative

Giant Refining Company

Order Number - 9708205

1. This report consists of 1 solid sample received by Paragon on 08/18/97.
2. This sample was extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the solid sample was processed through leaching procedures based on Method 1311. The leachate was extracted and analyzed based Method 8151 protocols. The leachate was extracted using separatory funnels. The samples are also processed through washing procedures to reduce interferences using the protocols listed in the method. The extracts were then derivitized using the diazomethane procedure contained in the method.
3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a DB-1701 capillary column according to protocols based on Method 8151. All positive results were then confirmed on a RTx-20 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interferences.
4. All samples were extracted and analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All blank spike recoveries were within the acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All surrogate recoveries were within acceptance criteria.



9. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Marty Brown
Marty Brown
GC Analyst

9-3-97
Date

RJB
Reviewer's Initials

9-4-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

<u>PAI-ID</u>	<u>Client ID</u>	<u>MATRIX</u>	<u>DATE SAMPLED</u>
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

TCLP CHLORINATED HERBICIDES

Method 8151

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

TCLP Blank

Lab Sample ID: RB1 08/22/97

Date Collected: N/A
Date Leached: 8/21/97
Date Extracted: 8/26/97
Date Analyzed: 8/29/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D016	2,4-D	94-75-7	ND	0.010
D017	2,4,5-TP (Silvex)	93-72-1	ND	0.0010

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	104	47 - 154

ND = Not Detected at or above client requested reporting limit.

TCLP CHLORINATED HERBICIDES

Method 8151

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Pond Sludge

Lab Sample ID: 9708205-4

Date Collected: 8/14/97
Date Leached: 8/21/97
Date Extracted: 8/26/97
Date Analyzed: 8/29/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D016	2,4-D	94-75-7	ND	0.010
D017	2,4,5-TP (Silvex)	93-72-1	ND	0.0010

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	92	47 - 154

ND = Not Detected at or above client requested reporting limit.

TCLP CHLORINATED HERBICIDES BLANK SPIKE

Method 8151

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Blank Spike

Lab Sample ID: BS1 08/22/97

Date Extracted: 08/26/97

Date Analyzed: 08/29/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL

Final Volume: 10 mL

Analyte	Spike Added (mg/L)	BS Concentration (mg/L)	BS Percent Recovery	QC Limits % Rec
2,4-D	0.025	0.025	98	55 - 140
Silvex	0.0025	0.0026	104	73 - 134

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Rec Limits
2,4-Dichlorophenylacetic acid	99	47 - 154

TCLP CHLORINATED HERBICIDES MATRIX SPIKE

Method 8151

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Lab Sample ID: 9708205-4MS

Sample Matrix: TCLP Leachate
 Cleanup: N/A

Sample ID

Pond Sludge

Date Collected: 08/14/97
 Date Leached: 08/21/97
 Date Extracted: 08/26/97
 Date Analyzed: 08/29/97

Sample Volume: 100 mL
 Final Volume: 10 mL

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	QC Limits % Rec
2,4-D	0.025	ND	0.024	98	55 - 140
Silvex	0.0025	ND	0.0026	104	73 - 134

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Rec Limits
2,4-Dichlorophenylacetic acid	99	47 - 154

ND = Not Detected



Paragon Analytical Services, Inc.

TCLP METALS CASE NARRATIVE

Giant Refining Company

Order Number - 9708205

1. This report consists of 1 TCLP sample.
2. The sample was received intact on 08/18/97. The temperature of the sample upon receipt was 21° Celsius.
3. The sample was prepared for analysis based on SW-846, 3rd Edition procedures.
The sample was processed through the TCLP leaching procedure based on method 1311. The leachate was then digested at a 10 fold dilution as follows.
For analysis by Trace ICP, the leachate was digested following method 3010A.
For analysis by Cold Vapor AA (CVAA), the leachate was digested following method 7470.
4. The leachate was analyzed following SW846 protocols by Trace ICP (Method 6010A) and CVAA (Method 7470). The analysis of silver was done by Trace ICP.
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The sample was prepared and analyzed within the established hold times.
7. Sample results which are below PAI's standard reporting limits are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in each digestion batch. There were not more than 20 samples in each digestion batch.
 - The preparation (method) blank results associated with each batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedure.
 - The laboratory control sample associated with each batch was within acceptance limits. This indicates complete digestion according to the method.



- All initial and continuing calibration blanks associated with each batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
 - All initial and continuing calibration verifications associated with each batch were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
 - The interference check samples, and high standard readbacks associated with Method 6010A analyses were within acceptance criteria.
9. Samples from other Order Numbers were used as the matrix QC samples for this Order Number.
- A matrix spike and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for accuracy were met.
 - A sample duplicate and spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.
 - A serial dilution was analyzed with the Trace ICP batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Darryl Patrick

Darryl Patrick
Senior Inorganic Chemist

8/29/97

Date

K1

Reviewer's Initials

8/29/97

Date

CERTIFICATION

Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE
			SAMPLED
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

TCLP METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9708205

Sample Matrix: TCLP Leachate

Sample ID

TCLP Blank

Date Collected: N/A
Prep Date: 08/22/97
Date Analyzed: 08/22/97

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	ND	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

DP

TCLP METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9708205-4

Sample Matrix: TCLP Leachate

Sample ID

Pond Sludge

Date Collected: 08/14/97
Prep Date: 08/22/97
Date Analyzed: 08/22/97

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	2	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	ND	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

DP

**TCLP METALS
MATRIX SPIKE**

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Lab Sample ID: 9708188-2

Sample ID

In House

Prep Date: 08/22/97
 Date Analyzed: 08/22/97

Sample Matrix: TCLP Leachate

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Arsenic	20.0	< 0.1	19.3	97	
Barium	20	3	21	90	
Cadmium	0.50	< 0.05	0.43	86	
Chromium	2.0	< 0.1	1.8	90	
Lead	5.00	< 0.03	4.61	92	
Selenium	20.0	< 0.05	19.5	98	
Silver	0.5	< 0.1	0.5	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Arsenic	19.3	97	0	
Barium	21	90	0	
Cadmium	0.43	86	0	
Chromium	1.8	90	0	
Lead	4.62	92	0	
Selenium	19.5	98	0	
Silver	0.5	100	0	

DP

**TCLP METALS
MATRIX SPIKE**

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Lab Sample ID: 9708157-1

Sample ID

In House

Sample Matrix: TCLP Leachate

Prep Date: 08/22/97
 Date Analyzed: 08/22/97

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.020	< 0.002	0.020	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Mercury	0.020	100	0	

DP



PARAGON ANALYTICALS, INC.
225 Commerce Drive Ft. Collins, CO 80524

(800) 443-1511 or (970) 490-1511
(970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 2/1/91 Page 1 of 1

ACCESSION NUMBER (LAB ID) 9708-205

REPORT TO: LYNN SHELTON
COMPANY:
ADDRESS: GIANT REFINING - BLOOMFIELD
PA. BOX 159
BLOOMFIELD, NM 87413
SAMPLER: [Signature]
(505) 632 5013 (505) 632 3911
PHONE NO. FAX NO.

ANALYSIS REQUESTED	Oil & Grease 9070/9071/413.2	418.1 - TRPH	8015 Mod. Gasoline	8015 Mod. Diesel	8015m/8020 - Gasoline/BETX	8020 - BETX only	8240/8260 - GC/MS VOC's	8270 - GC/MS SVOC's	8080 - Pesticides/PCB's	8080 - PCB's only	8310/610 - HPLC PNA's	8150 - Herbicides	8141/614 - OP Pesticides	TOX - EOX - AOX - TX	Total Metals (specify in comments)	TCLP: (specify parameters in comments)	Gross Alpha / Beta	Gross Gamma	Gamma Spec	Isotopic Plutonium	Isotopic Uranium	Total Uranium (KPA)	Radium 226 / 228	Tritium (H3)	Strontium 89 / 90	8315 - Formaldehyde	% Moisture	WACC PARAMETERS	SEE ATTACHED	Number of Containers	
RIVER - B	01					X																									2
RIVER - B	02					X																									2
NOV P - E	03					X																									1
POND SLUDGE	04														X																1

PROJECT INFORMATION	RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
PROJECT NUMBER: [Signature]	1	2	3
PROJECT NAME: [Signature]	Sign.	Sign.	Sign.
P.D. NUMBER: [Signature]	Print	Print	Print
TAT: STANDARD	Company G.I.A.M.T.	Company FDX	Company
RUSH DUE	1 RECEIVED BY: [Signature]	2 RECEIVED BY: [Signature]	3 RECEIVED BY: [Signature]
HAZ WASTE \$5.00 ea	Time	Time	Time
RETURN	Date	Date	Date
RAD CHEM \$15.00 ea	Company FDX	Company PAF	Company

COMMENTS: 1-40mL w/a Rec'd Broken
Run - 1 gwgway.

* NO NOT WRITE IN SHADED AREAS

DISTRIBUTION: White, Canary - PARAGON ANALYTICALS, INC. Pink - Originator

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: Giant Refining

SHIPPING CONTAINER #: cooler

WORKORDER NO. 9708205

INITIALS: st

DATE: 8/13/97

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature _____ b. Lot No's _____ c. Airbill Number _____		Yes	<u>No</u>
2.	Are custody seals on the cooler intact? If so, how many <u>2</u>	N/A	<u>Yes</u>	No
3.	Are custody seals on sample containers intact?	<u>N/A</u>	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		<u>Yes</u>	No
5.	Is the COC complete? Relinquished: Yes <input checked="" type="checkbox"/> No Requested Analysis: Yes <input checked="" type="checkbox"/> No	N/A	<u>Yes</u>	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes <input checked="" type="checkbox"/> No _____ Sample ID's: Yes <input checked="" type="checkbox"/> No _____ Matrix: Yes <input checked="" type="checkbox"/> No _____ No. of Containers: Yes _____ No <input checked="" type="checkbox"/>		Yes	<u>No</u>
7.	Are the samples requiring chemical preservation preserved correctly?	N/A	<u>Yes</u>	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	<u>No</u>
9.	Are all samples within holding times for the requested analyses?		Yes	<u>No</u>
10.	Were the sample(s) shipped on ice?	N/A	<u>Yes</u>	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	<u>No</u>
12.	Are samples requiring no headspace, headspace free?	N/A	<u>Yes</u>	No
13.	Do the samples require quarantine?		Yes	<u>No</u>
14.	Do samples require Paragon disposal?		<u>Yes</u>	No
15.	Did the client return any unused bottles?		Yes	<u>No</u>

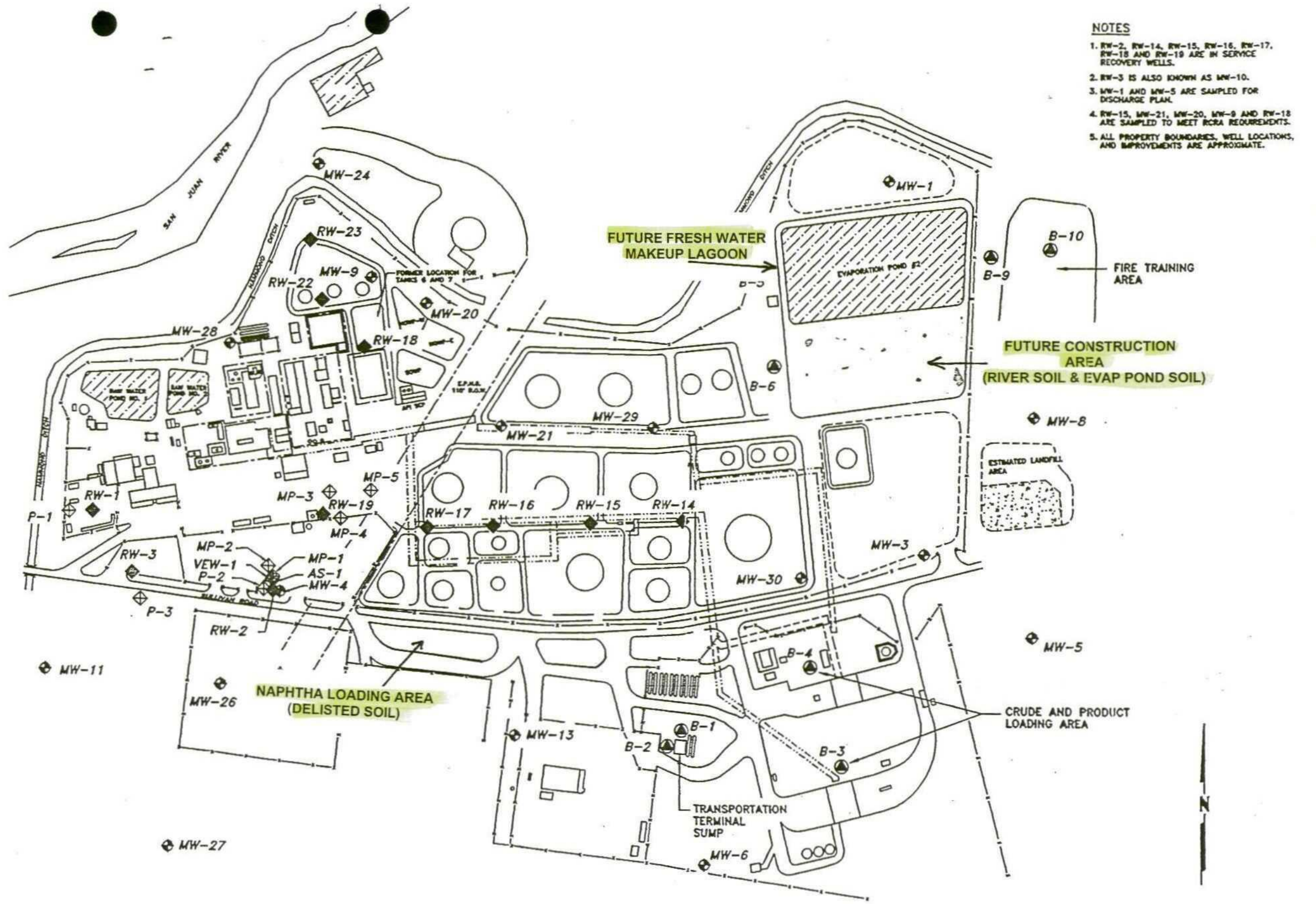
Describe "NO" items (except No's 1, 13, & 14) (6) - Number of Cont. NOT written in by client
(8) only 1-8oz soil for sent for Pond Sludge for all tests. (9) - Sample "Riva-B" but of Add upon Receipt. (10) - ICE expired. (11) - 100ml vial for "NOWP-E" and
Bottle - Still VIAL TO ANALYZE.

Was the client contacted? Yes _____ No _____
 If yes, Date: _____ Name of person contacted: _____

Describe actions taken or client instructions: _____

Group Leader's Signature: _____ Date: _____

Cooler Temperature: 21°C



- NOTES**
1. RW-2, RW-14, RW-15, RW-16, RW-17, RW-18 and RW-19 ARE IN SERVICE RECOVERY WELLS.
 2. RW-3 IS ALSO KNOWN AS MW-10.
 3. MW-1 AND MW-5 ARE SAMPLED FOR DISCHARGE PLAN.
 4. RW-15, MW-21, MW-20, MW-9 AND RW-18 ARE SAMPLED TO MEET RCRA REQUIREMENTS.
 5. ALL PROPERTY BOUNDARIES, WELL LOCATIONS, AND IMPROVEMENTS ARE APPROXIMATE.

NO.	DATE	BY	REVISION
LEGEND			
---			PIPEWAY
---			UNDERGROUND PIPEWAY
-x-			FENCE
⊕			MW-1 MONITORING WELL
⊕			RW-1 RECOVERY WELL
⊕			SOIL BORING
B-1			
⊕			PIEZOMETER
P-1			

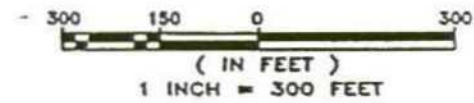
ATTENTION

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Giant Refining Company
 #50 COUNTY ROAD 4990
 BLOOMFIELD, NEW MEXICO

SOIL BORING/
 MONITORING WELL
 LOCATIONS

PROJECT NO.:	CONTRACT:
053353014	
DRAWING:	REVISION:





PARAGON ANALYTICS, INC.

225 Commerce Drive ♦ Fort Collins, CO 80524 ♦ (800) 443-1511 ♦ (970) 490-1511 ♦ FAX (970) 490-1522

October 2, 1997

Mr. Lynn Shelton
Giant Refining Company
#50 County Road 4990/PO Box 159
Bloomfield, NM 87413

RE: Paragon Workorder: 97-08-247
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Mr. Shelton:

Three soil and four water samples were received from Giant Refining Company on August 21, 1997. The samples were scheduled for the following analyses:

Phenols	pages 1-3
pH	pages 1-4
Aromatic Volatile Organics	pages 1-8
Inorganics	pages 1-8
PAHs by HPLC	pages 1-8
Total Metals	pages 1-9
GC/MS Volatiles	pages 1-17

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Victoria Bayly
Project Manager

VB/jjc
Enclosure: Report

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: Giant Refining

SHIPPING CONTAINER #: cooler

WORKORDER NO. 97-08-247

INITIALS: FB

DATE: 8/21/97

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature _____ b. Lot No's. _____ c. Airbill Number _____		Yes	<u>No</u>
2.	Are custody seals on the cooler intact? If so, how many <u>2</u>	<u>N/A</u>	<u>Yes</u>	No
3.	Are custody seals on sample containers intact?	<u>N/A</u>	<u>Yes</u>	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		<u>Yes</u>	No
5.	Is the COC complete? Relinquished: Yes ___ No ___ Requested Analysis: Yes ___ No ___	<u>N/A</u>	<u>Yes</u>	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ___ No ___ Sample ID's: Yes ___ No ___ Matrix: Yes ___ No ___ No. of Containers: Yes ___ No ___		<u>Yes</u>	No
7.	Are the samples requiring acid preservation preserved correctly?	<u>N/A</u>	<u>Yes</u>	No
8.	Is there enough sample? If so, are they in the proper containers?		<u>Yes</u>	No
9.	Are all samples within holding times for the requested analyses?		<u>Yes</u>	No
10.	Were the sample received on ice?	<u>N/A</u>	<u>Yes</u>	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		<u>Yes</u>	<u>No</u>
12.	Are samples requiring no headspace, headspace free?	<u>N/A</u>	Yes	<u>No</u>
13.	Do the samples require quarantine?		<u>Yes</u>	<u>No</u>
14.	Do samples require Paragon disposal?		<u>Yes</u>	No
15.	Did the client return any unused bottles?		Yes	<u>No</u>

Describe "NO" items (except No's 1, 13, & 14):
(10) Samples on top of absorbent pad which was on top of ice.
(ice should be on top of samples)
(12) All soils contained headspace.

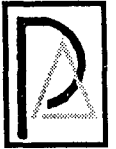
Was the client contacted? Yes ___ No ___
 If yes, Date: _____ Name of person contacted: _____

Describe actions taken or client instructions:

Group Leader's Signature: _____ Date: _____

Cooler Temperature: 15°C

Paragon Analytics, Inc.



PH ANALYSIS CASE NARRATIVE

Giant Refining Company

Order Number - 9708247

1. This report consists of three soil and two water samples.
2. The samples were received intact at a temperature of 15^o C. on August 21, 1997.
3. The samples were prepared for analysis based on SW-846, 3rd Edition procedures. Specifically, the water samples were analyzed following Method 9040. The soil samples were analyzed following Method 9045B.
4. All standards and solutions were used within their recommended shelf life.

All in house quality control procedures were followed, as described below.

5. General quality control procedures.
 - All initial and continuing calibration verifications associated with each batch were within acceptance criteria for the requested analyte. This indicates a valid calibration and stable instrument conditions.
6. A sample from another Order Number was used as the matrix QC sample for the water batch.

PAI sample ID 9708247-1 (River Soil) was used as the matrix QC sample for the soil batch.

 - A duplicate was prepared and analyzed with each batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:



Krista Mobley
Krista Mobley
Inorganic Technician

7-1-97
Date

K
Reviewer's Initials

9/4/97
Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

pH Soil
Method SW846 9045B
Sample Results

Page 1 of 1

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining Company
Client Project ID: Not Submitted
Work Order Number: 9708247
Reporting Basis: AS RECEIVED

Reported on: Thursday, September 04, 1997

Final Volume: N/A
Matrix: Soil

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
River Soil	9708247-1	8/20/97	N/A	9/1/97	N/A	1	7.8	PH			N/A
Delisted Soil	9708247-2	8/20/97	N/A	9/1/97	N/A	1	7.9	PH			N/A
Evap. Pond Bottoms	9708247-3	8/20/97	N/A	9/1/97	N/A	1	7.9	PH			N/A

Comments:

000003

pH Water
Method SW846 9040
Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining Company
Client Project ID: Not Submitted
Work Order Number: 9708247
Reporting Basis: AS RECEIVED

Reported on: Thursday, September 04, 1997

Final Volume: N/A
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
NOWP-E	9708247-4	8/20/97	N/A	9/1/97	N/A	1	7.6	PH			N/A
Injection Well	9708247-6	8/20/97	N/A	9/1/97	N/A	1	7.5	PH			N/A

Comments:

000004 *KM*



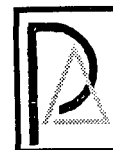
Paragon Analyticals, Inc.

Aromatic Volatile Organics Case Narrative

Giant Refining Co.

Order Number - 9708247

1. This report consists of 2 soil samples received by Paragon on 08/21/97.
2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were prepared by heating and purging 5 grams of sample mixed with 5 mls of reagent water. The calibration curve was also prepared using the heated purge. This procedure, including the heating step, is based on Method 5030.
3. The samples were analyzed using a GC with a DB-VRX capillary column and a PID detector according to protocols based on SW-846 Method 8020. All positive results were quantitated using the responses from the initial calibration curve using the internal standard technique. Second column confirmation was performed on all samples with positive results on a DB-624 capillary column.
4. All samples were analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.
7. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.



8. All surrogate recoveries were within acceptance criteria.
9. All internal standard recoveries were within acceptance criteria.
10. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analyticals, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Marty D. Brown
Marty Brown
GC Analyst

9-12-97
Date

RB
Reviewer's Initials

9-14-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708247-1	River Soil	Soil	08/20/97
9708247-2	Delisted Soil	Soil	08/20/97
9708247-3	Evap. Pond Bottoms	Soil	08/20/97
9708247-4	NOWP-E	Water	08/20/97
9708247-5	River-B	Water	08/20/97
9708247-6	Injection Well	Water	08/20/97
9708247-7	Trip Blank	Water	08/20/97

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Co.
Client Project ID: Not Submitted

Date Collected: N/A
Date Extracted: 8/26/97
Date Analyzed: 8/26/97

Lab Sample ID: SRB1 8/26/97

Sample Matrix: Soil
% Moisture: 0 %
Results based on wet weight

Sample Weight: 5 g
Purge Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/Kg)	Reporting Limit (ug/Kg)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
M,P-Xylene	ND	1.0
O-Xylene	ND	0.50
Total Xylenes	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	93	69 - 119

ND = Not Detected at or above client requested reporting limit.

000004

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

NOWP-E

Lab Name: Paragon Analytics, Inc.

Client Name: Giant Refining Co.

Client Project ID: Not Submitted

Date Collected: 8/20/97

Date Extracted: 8/27/97

Date Analyzed: 8/27/97

Lab Sample ID: 9708247-4

Sample Matrix: Soil

% Moisture: 0 %

Results based on wet weight

Sample Weight: 5 g

Purge Volume: 5 mL

Dilution Factor: 1

Analyte	Conc (ug/Kg)	Reporting Limit (ug/Kg)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
M,P-Xylene	ND	1.0
O-Xylene	ND	0.50
Total Xylenes	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	92	69 - 119

ND = Not Detected at or above client requested reporting limit.

000005

CHLORIDE

Method 300.0

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9708247

Date Collected: 08/20/97
Date Analyzed: 09/11-12/97
Sample Matrix: Soil

Client ID	Lab Sample ID	Chloride Conc (mg/kg)	Detection Limit (mg/kg)	
	Method Blank	ND	2	x20
River Soil	9708247-1	280	20	400
Delisted Soil	9708247-2	24	2	40
Evap. Pond Bottoms	9708247-3	43000	2000	40,000

ND = Not Detected

000003

CHLORIDE MATRIX SPIKE

Method 300.0

Lab Name: Paragon Analytics, Inc.

Paragon Sample ID: 9708247-2

Date Analyzed: 09/12/97

Sample Matrix: Soil

Sample ID

Delisted Soil

Analyte	Spike Added (mg/kg)	Sample Concentration (mg/kg)	MS Concentration (mg/kg)	MS Percent Recovery	MS/MSD Acceptance Limit
Chloride	50	24	71	94	85-115%

Analyte	Spike Added (mg/kg)	MSD Concentration (mg/kg)	MSD Percent Recovery	RPD %	RPD Acceptance Limit
Chloride	50	77	106	8	0-20 %

000004

NITRATE
Method 300.0

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Client Project No:
 Lab Workorder Number: 9708247

Date Collected: 08/20/97
 Date Analyzed: 09/12/97
 Sample Matrix: Soil

Client ID	Lab Sample ID	Nitrate as N Conc (mg/kg)	Detection Limit (mg/kg)	
	Method Blank	ND	2	
River Soil	9708247-1	ND	2	40
Delisted Soil	9708247-2	13	2	40
Evap. Pond Bottoms	9708247-3	ND	2	40

ND = Not Detected

NITRATE MATRIX SPIKE

Method 300.0

Sample ID

Delisted Soil

Lab Name: Paragon Analytics, Inc.

Paragon Sample ID: 9708247-2

Date Analyzed: 09/12/97

Sample Matrix: Soil

Analyte	Spike Added (mg/kg)	Sample Concentration (mg/kg)	MS Concentration (mg/kg)	MS Percent Recovery	MS/MSD Acceptance Limit
Nitrate as N	50	13	64	102	85-115%

Analyte	Spike Added (mg/kg)	MSD Concentration (mg/kg)	MSD Percent Recovery	RPD %	RPD Acceptance Limit
Nitrate as N	50	68	110	6	0-15 %

000006

SULFATE
Method 300.0

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Client Project No. Not Submitted
 Lab Workorder Number: 9708247

Date Collected: 08/20/97
 Date Analyzed: 09/11/97
 Sample Matrix: Soil

Client ID	Lab Sample ID	Sulfate Conc (mg/kg)	Detection Limit (mg/kg)	
	Method Blank	ND	10	
River Soil	9708247-1	8000	200	4000
Delisted Soil	9708247-2	1800	100	2000
Evap. Pond Bottoms	9708247-3	7800	1000	2000

ND = Not Detected

000007

SULFATE MATRIX SPIKE

Method 300.0

Lab Name: Paragon Analytics, Inc.

Paragon Sample ID: 9708247-2

Date Analyzed: 09/11/97

Sample Matrix: Soil

Sample ID

Delisted Soil

Analyte	Spike Added (mg/kg)	Sample Concentration (mg/kg)	MS Concentration (mg/kg)	MS Percent Recovery	MS/MSD Acceptance Limit
Sulfate	2000	1827	3864	102	85-115%

Analyte	Spike Added (mg/kg)	MSD Concentration (mg/kg)	MSD Percent Recovery	RPD %	RPD Acceptance Limit
Sulfate	2000	3855	101	0.2	0-15 %

000008

Paragon Analytics, Inc.



PAHs by HPLC Case Narrative

Giant Refining Company

Not Submitted

Order Number - 9708247

1. This report consists of 3 soil samples received by Paragon on 8/21/97.
2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. These extracts were then processed using Silica Gel cleanup by Method 3630 in an attempt to remove potential interferences.
3. The extracts were then analyzed using HPLC with UV and fluorescence detectors with a reverse phase C18 column according to protocols based on Method 8310. All compounds are analyzed using UV at 254 nm. Confirmation is performed for positive results using the fluorescence detector or confirmed by UV at 280 nm for those compounds that do not respond to the fluorescence detector. The quantitation of each analyte is usually taken from the detector that exhibits the fewest interferences. These quantitations minimize the chances of reporting elevated results based on interferences. If compounds do not confirm quantitatively (if the higher amount is greater than twice the lower amount the 2 amounts are considered *not* to confirm each other quantitatively), then the value is flagged with a "K" and noted on the report page.
4. All samples were extracted and analyzed within the established holding times.
5. The method blank associated with this project was below the reporting limits for all analytes.
6. All Blank Spike and Blank Spike Duplicate recoveries and RPDs were within the acceptance criteria.
7. All Matrix Spike and Matrix Spike Duplicate criteria were met with the following exception:

<u>Spike Compound</u>	<u>Sample</u>
Pyrene	MS



Although only Pyrene exceeded the acceptance criteria in the MS, the concentrations for both Pyrene and Phenanthrene found in both matrix spikes extended beyond the range of the calibration curve, partially due to the high amounts of these compounds found in the sample. The recoveries of these compounds in the Blank Spike and Blank Spike Duplicate were within control limits, which demonstrated the spike outliers in the Matrix Spikes were due to matrix effects, so no further action is needed.

8. All surrogate recoveries were within acceptable limits with the following exception:

<u>Sample</u>	<u>Surrogate</u>
2	2-Chloroanthracene

The surrogate recovery was low due to high amounts of interferences. The sample was put through Silica Gel cleanup in an attempt to remove the interferences, but enough interference remained after clean-up to make accurate quantitation of the surrogate recovery difficult.

9. Due to matrix interferences and high levels of target analytes, samples 2 and 3 were analyzed at a higher dilution. The detection limits have been adjusted accordingly.
10. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Preston Mathiesen
Preston Mathiesen
HPLC Analyst

9/15/97
Date

EM
Reviewer's Initials

9-15-97
Date

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Reagent Blank

Lab Sample ID: SRB1 8/25/97

Date Collected: N/A
 Date Extracted: 8/25/97
 Date Analyzed: 9/10/97

Sample Matrix: Sodium Sulfate
 Cleanup: Silca gel
 % Moisture: 0 %
 Results based on wet weight

Sample Weight: 30 g
 Final Volume: 1 mL
 Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Naphthalene	ND	15
Acenaphthylene	ND	30
1-Methylnaphthalene	ND	30
2-Methylnaphthalene	ND	30
Acenaphthene	ND	20
Fluorene	ND	3.0
Phenanthrene	ND	2.0
Anthracene	ND	2.0
Fluoranthrene	ND	3.0
Pyrene	ND	2.0
Benzo(a)anthracene	ND	3.0
Chrysene	ND	2.0
Benzo(b)fluoranthrene	ND	3.0
Benzo(k)fluoranthrene	ND	2.0
Benzo(a)pyrene	ND	3.0
Dibenzo(a,h)anthracene	ND	3.0
Benzo(g,h,i)perylene	ND	2.0
Indeno(1,2,3-c,d)pyrene	ND	2.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	73	39 - 121

ND = Not Detected at or above client requested reporting limit.

fm

000003

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Sample ID

River Soil

Lab Sample ID: 9708247-1

Date Collected: 8/20/97
 Date Extracted: 8/25/97
 Date Analyzed: 9/10/97

Sample Matrix: Soil
 Cleanup: Silca gel
 % Moisture: 0 %
 Results based on wet weight

Sample Weight: 30 g
 Final Volume: 1 mL
 Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)	
Naphthalene	24	15	300
Acenaphthylene	ND	30	600
1-Methylnaphthalene	43	30	600
2-Methylnaphthalene	61	30	600
Acenaphthene	ND	20	400
Fluorene	2.6 J	3.0	60
Phenanthrene	18	2.0	40
Anthracene	3.4	2.0	40
Fluoranthrene	12 K	3.0	60
Pyrene	32	2.0	40
Benzo(a)anthracene	26	3.0	60
Chrysene	11 K	2.0	40
Benzo(b)fluoranthrene	2.5 J, K	3.0	60
Benzo(k)fluoranthrene	1.2 J, K	2.0	40
Benzo(a)pyrene	ND	3.0	60
Dibenzo(a,h)anthracene	3.4	3.0	60
Benzo(g,h,i)perylene	7.9	2.0	40
Indeno(1,2,3-c,d)pyrene	1.1 J	2.0	40

RULE
OF
20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	87	39 - 121

ND = Not Detected at or above client requested reporting limit.
 K = Concentration confirmation does not agree within 50%.
 J = Estimated value. Below reporting limits.

pm

000004

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Delisted Soil

Lab Sample ID: 9708247-2

Date Collected: 8/20/97
 Date Extracted: 8/25/97
 Date Analyzed: 9/11/97

Sample Matrix: Soil
 Cleanup: Silca gel
 % Moisture: 0 %
 Results based on wet weight

Sample Weight: 30 g
 Final Volume: 1 mL
 Dilution Factor: 10

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)	RULE OF 20
Naphthalene	ND	150	3000
Acenaphthylene	ND	300	6000
1-Methylnaphthalene	ND	300	6000
2-Methylnaphthalene	ND	300	6000
Acenaphthene	ND	200	4000
Fluorene	ND	30.0	600
Phenanthrene	ND	20.0	400
Anthracene	ND	20.0	400
Fluoranthrene	ND	30.0	600
Pyrene	ND	20.0	400
Benzo(a)anthracene	ND	30.0	600
Chrysene	ND	20.0	400
Benzo(b)fluoranthrene	21 J	30.0	600
Benzo(k)fluoranthrene	ND	20.0	400
Benzo(a)pyrene	ND	30.0	600
Dibenzo(a,h)anthracene	390	30.0	600
Benzo(g,h,i)perylene	230	20.0	400
Indeno(1,2,3-c,d)pyrene	ND	20.0	400

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	18 *	39 - 121

ND = Not Detected at or above client requested reporting limit.

J = Estimated value. Below reporting limits.

* = Out of limits. See case narrative.

fm

000005

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Evap. Pond Bottoms

Lab Sample ID: 9708247-3

Date Collected: 8/20/97
 Date Extracted: 8/25/97
 Date Analyzed: 9/11/97

Sample Matrix: Soil
 Cleanup: Silca gel
 % Moisture: 0 %
 Results based on wet weight

Sample Weight: 30 g
 Final Volume: 1 mL
 Dilution Factor: 10

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)	
Naphthalene	ND	150	3000
Acenaphthylene	ND	300	6000
1-Methylnaphthalene	ND	300	6000
2-Methylnaphthalene	ND	300	6000
Acenaphthene	ND	200	4000
Fluorene	ND	30	600
Phenanthrene	26	20	400
Anthracene	ND	20	400
Fluoranthrene	49 K	30	600
Pyrene	33	20	400
Benzo(a)anthracene	ND	30	600
Chrysene	ND	20	400
Benzo(b)fluoranthrene	ND	30	600
Benzo(k)fluoranthrene	ND	20	400
Benzo(a)pyrene	ND	30	600
Dibenzo(a,h)anthracene	16 J	30	600
Benzo(g,h,i)perylene	ND	20	400
Indeno(1,2,3-c,d)pyrene	ND	20	400

ROLL OF 20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	60	39 - 121

ND = Not Detected at or above client requested reporting limit.
 K = Concentration confirmation does not agree within 50%.
 J = Estimated value. Below reporting limits.

fm

000006

POLYNUCLEAR AROMATIC HYDROCARBONS MATRIX SPIKE

Method 8310

Sample ID

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

River Soil

Lab Sample ID: 9708247-1

Date Collected: 8/20/97
 Date Extracted: 8/25/97
 Date Analyzed: 9/10/97

Sample Matrix: Soil
 Cleanup: Silca gel
 % Moisture: 0 %
 Results based on wet weight

Sample Weight: 30 g
 Final Volume: 1 mL
 Dilution Factor: 1

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Acenaphthylene	333	ND	200	60	27 - 90
Phenanthrene	33.3	17.6	48.8	93	46 - 96
Pyrene	33.3	31.8	67.6	107 *	43 - 96
Benzo(k)fluoranthene	8.33	1.21	8.04	82	66 - 115
Dibenzo(a,h)anthracene	33.3	3.36	21.6	55	20 - 133

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	333	185	56	8	20
Phenanthrene	33.3	45.5	84	11	20
Pyrene	33.3	62.5	92	15	20
Benzo(k)fluoranthene	8.33	7.76	79	4	20
Dibenzo(a,h)anthracene	33.3	25.2	65	18	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2-Chloroanthracene	96	92	39 - 121

ND = Not Detected

* = Out of limits. See case narrative.

000007

POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE

Method 8310

Sample ID

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted

Blank Spike

Date Extracted: 8/25/97
 Date Analyzed: 9/10/97

Lab Sample ID: SBS1 & 2, 8/25/97

Sample Matrix: Sodium Sulfate
 Cleanup: Silca gel

Sample Weight: 30 g
 Final Volume: 1 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	333	186	56	27 - 90
Phenanthrene	33.3	20.5	62	46 - 96
Pyrene	33.3	24.0	72	43 - 96
Benzo(k)fluoranthene	8.33	6.35	76	66 - 115
Dibenzo(a,h)anthracene	33.3	18.6	56	20 - 133

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	333	198	59	6	20
Phenanthrene	33.3	22.3	67	8	20
Pyrene	33.3	24.2	73	1	20
Benzo(k)fluoranthene	8.33	7.49	90	17	20
Dibenzo(a,h)anthracene	33.3	22.1	66	17	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	71	71	39 - 121

000003 *pm*



Paragon Analytics, Inc.

TOTAL METALS CASE NARRATIVE

Giant Refining Company

Order Number - 9708247

1. This report consists of 3 soil samples.
2. The samples were received intact on 08/21/97. The temperature of the samples upon receipt was 15° Celsius.
3. The samples were prepared for analysis based on SW-846, 3rd Edition procedures. For analysis by conventional ICP, the samples were digested following method 3050A.
4. The samples were analyzed following SW846 protocols by conventional ICP (Method 6010A).
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.
7. Sample results which are below PAI's standard reporting limits are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in this digestion batch. There were not more than 20 samples in the digestion batch.
 - The preparation (method) blank results associated with this batch were below the reporting limits for the requested analytes with the exception of iron. All samples contained concentrations of iron greater than ten times that of the method blank so no further action was required.
 - The laboratory control sample associated with this batch was within acceptance limits. This indicates complete digestion according to the method.
 - All initial and continuing calibration blanks associated with this batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.



- All initial and continuing calibration verifications associated with this batch were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
 - The interference check samples, and high standard readbacks associated with Method 6010A analytes were within acceptance criteria.
9. A sample from this Order Number was used as the QC sample for this batch.
- A matrix spike and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria for accuracy were met with the following exceptions.

<u>Analyte</u>	<u>Sample ID</u>
Aluminum	9708247-1S & DS
Iron	9708247-1S & DS
Manganese	9708247-1S & DS

The concentration of these analytes in the native sample was greater than 4 times the concentration of matrix spike added during the digestion. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The Laboratory Control Sample is included to show that the digestion and analysis were in control.

- A sample duplicate and spike duplicate were digested and analyzed with this batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with this batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Darryl Patrick
Darryl Patrick
Senior Inorganic Chemist

9/5/97
Date

UH
Reviewer's Initials

9/5/97
Date

CERTIFICATION

Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708247-1	River Soil	Soil	08/20/97
9708247-2	Delisted Soil	Soil	08/20/97
9708247-3	Evap. Pond Bottoms	Soil	08/20/97
9708247-4	NOWP-E	Water	08/20/97
9708247-5	River-B	Water	08/20/97
9708247-6	Injection Well	Water	08/20/97
9708247-7	Trip Blank	Water	08/20/97

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9708247

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 08/29/97
Date Analyzed: 09/02/97

Analyte	Concentration mg/kg	Reporting Limit mg/kg
Aluminum	ND	20
Boron	ND	10
Cobalt	ND	1
Copper	ND	1
Iron	30	10
Manganese	ND	1
Molybdenum	ND	1
Nickel	ND	2
Zinc	ND	2

ND = Not detected at or above the reporting limit.

000004

DP

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: 9708247-1

Sample ID

River Soil

Date Collected: 08/20/97
 Prep Date: 08/29/97
 Date Analyzed: 09/02/97

Sample Matrix: Soil

Analyte	Concentration mg/kg	Reporting Limit mg/kg	RULE OF 20
Aluminum	5600	20	400
Boron	ND	10	200
Cobalt	4	1	20
Copper	6	1	20
Iron	8700	10	200
Manganese	240	1	20
Molybdenum	1	1	20
Nickel	4	2	40
Zinc	20	2	40

ND = Not detected at or above the reporting limit.

000005

P

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Client Project ID: Not Submitted
 Lab Sample ID: 9708247-2

Sample Matrix: Soil

Sample ID

Delisted Soil

Date Collected: 08/20/97
 Prep Date: 08/29/97
 Date Analyzed: 09/02/97

Analyte	Concentration mg/kg	Reporting Limit mg/kg	RULE OF 20
Aluminum	8200	20	400
Boron	ND	10	200
Cobalt	5	1	20
Copper	40	1	20
Iron	13000	10	200
Manganese	310	1	20
Molybdenum	1	1	20
Nickel	10	2	40
Zinc	160	2	40

ND = Not detected at or above the reporting limit.

000006

DP

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9708247-3

Sample Matrix: Soil

Sample ID

Evap. Pond Bottoms

Date Collected: 08/20/97

Prep Date: 08/29/97

Date Analyzed: 09/02/97

Analyte	Concentration mg/kg	Reporting Limit mg/kg	RULE OF 20
Aluminum	4000	20	400
Boron	ND	10	200
Cobalt	2	1	20
Copper	6	1	20
Iron	5700	10	200
Manganese	190	1	20
Molybdenum	2	1	20
Nickel	5	2	40
Zinc	39	2	40

ND = Not detected at or above the reporting limit.

000007

DP

**TOTAL METALS
MATRIX SPIKE**

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Lab Sample ID: 9708247-1

Sample ID

River Soil

Prep Date: 08/29/97
 Date Analyzed: 09/02/97

Sample Matrix: Soil

Analyte	Spike Added mg/kg	Sample Conc. mg/kg	MS Conc. mg/kg	% Rec (limits 80-120%)	Flags
Aluminum	200	5580	7320	870	See Note
Boron	100	< 10	80	80	
Cobalt	50	4	51	94	
Copper	25	6	31	100	
Iron	100	8710	10200	1490	See Note
Manganese	50	242	299	114	See Note
Molybdenum	100	1	92	91	
Nickel	50	4	50	92	
Zinc	50	20	66	92	

Analyte	MSD Conc. mg/kg	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Aluminum	6940	680	5	See Note
Boron	80	80	0	
Cobalt	50	92	2	
Copper	31	100	0	
Iron	9120	410	11	See Note
Manganese	288	92	4	See Note
Molybdenum	93	92	1	
Nickel	50	92	0	
Zinc	65	90	2	

Sample results shown on spike page(s) may differ slightly from results on sample page(s). Where sample concentration is sufficiently high, three significant figures are used to determine spike recoveries and relative percent difference.

Note: Due to the large concentration of analyte in the sample, matrix spike recoveries may not be accurate. The Laboratory Control Sample (LCS) is included on a separate page to show that the digestion and analysis were in control.

000008

DP

**TOTAL METALS
LABORATORY CONTROL SAMPLE**

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Order Number: 9708247

Date Analyzed: 09/02/97

Analyte	LCS	LCS	LCS	LCS		
	Result mg/kg	True Value mg/kg	% Recovery	Acceptance Limits % Recovery		
Aluminum	200	200	100	80	-	120
Iron	100	100	100	80	-	120
Manganese	47	50	94	80	-	120

000009

DP



Paragon Analytics, Inc.

GC/MS Volatiles Case Narrative

Giant Refining Company

Order Number - 9708247


1. This report consists of 3 soil samples received by Paragon on August 31, 1997.
2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were prepared by purging a heated 5 grams of sample mixed with 5 mls of reagent water. The calibration curve was also prepared using the heated purge. This procedure, including the heating step, is based on Method 5030.
3. The samples were analyzed using GC/MS with a RTX-624 capillary column according to protocols based on SW-846 Method 8260. All positive results were quantitated with the average response of the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. All samples were analyzed within the established holding times.
5. The method blank(8/30/97) had methylene below the reporting limit. This compound was detected in samples -1.-2, so the data were flagged accordingly.

The method blank(9/1/97) had methylene chloride above the reporting limit. This compound was detected in sample -3, so the data were flagged accordingly.
6. The matrix spike and matrix spike duplicate for the samples was performed on an in house sample provided from a different client. A blank spike and blank spike duplicate were submitted instead.



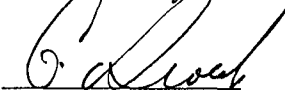
7. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.
8. All surrogate recoveries were within acceptance criteria, with the exception of sample -2 which had surrogates outside control limits. The sample was re-analyzed to evaluate whether the original outlier was due to matrix effects or laboratory performance. The re-analysis also had surrogates outside the control limits, which demonstrated the presence of matrix effects.
9. Internal standards in sample -2 were outside the acceptance criteria. The sample was re-analyzed to determine whether the outliers were due to matrix effects. The re-analyses was also outside the limits, which indicate matrix effects were present.
10. Due to matrix interferences and high levels of target analytes samples were analyzed at a higher dilution. The reporting limits have been adjusted accordingly.
11. All initial and continuing calibration criteria were within acceptance criteria. Method 8260 states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.



Phil Tallarico
GC/MS Analyst

9-4-97
Date



Reviewer's Initials

9-4-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708247-1	River Soil	Soil	08/20/97
9708247-2	Delisted Soil	Soil	08/20/97
9708247-3	Evap. Pond Bottoms	Soil	08/20/97
9708247-4	NOWP-E	Water	08/20/97
9708247-5	River-B	Water	08/20/97
9708247-6	Injection Well	Water	08/20/97
9708247-7	Trip Blank	Water	08/20/97

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID: .

Reported on: Thursday, September 04, 1997

Field ID: LABQC
Lab ID: VA970830-1MB

Sample Matrix: Solid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: NA

Date Collected: 30-Aug-97
Date Extracted: 30-Aug-97
Date Analyzed: 30-Aug-97
Prep Batch: v08188b3

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/kg	10	U	
74-87-3	CHLOROMETHANE	10	ug/kg	10	U	
75-01-4	VINYL CHLORIDE	10	ug/kg	10	U	
74-83-9	BROMOMETHANE	10	ug/kg	10	U	
75-00-3	CHLOROETHANE	10	ug/kg	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/kg	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/kg	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/kg	5	U	
67-64-1	ACETONE	20	ug/kg	20	U	
74-88-4	IODOMETHANE	5	ug/kg	5	U	
75-15-0	CARBON DISULFIDE	5	ug/kg	5	U	
75-09-2	METHYLENE CHLORIDE	4.9	ug/kg	5	J	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/kg	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/kg	5	U	
108-05-4	VINYL ACETATE	20	ug/kg	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
78-93-3	2-BUTANONE	20	ug/kg	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/kg	5	U	
67-66-3	CHLOROFORM	5	ug/kg	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/kg	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/kg	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/kg	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/kg	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/kg	5	U	
71-43-2	BENZENE	5	ug/kg	5	U	
79-01-6	TRICHLOROETHENE	5	ug/kg	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/kg	5	U	
74-95-3	DIBROMOMETHANE	5	ug/kg	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/kg	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/kg	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/kg	20	U	
108-88-3	TOLUENE	5	ug/kg	5	U	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/kg	5	U	
591-78-6	2-HEXANONE	20	ug/kg	20	U	

000004

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

Client Project ID: .

Reported on: Thursday, September 04, 1997

Field ID: LABQC

Lab ID: VA970830-1MB

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: NA

Date Collected: 30-Aug-97

Date Extracted: 30-Aug-97

Date Analyzed: 30-Aug-97

Prep Batch: v08188b3

Sample Aliquot: 5

Final Volume: 5

Dilution: 1

127-18-4	TETRACHLOROETHENE	5	ug/kg	5	U
142-28-9	1,3-DICHLOROPROPANE	5	ug/kg	5	U
124-48-1	DIBROMOCHLOROMETHANE	5	ug/kg	5	U
106-93-4	1,2-DIBROMOETHANE	5	ug/kg	5	U
544-10-5	1-CHLOROHEXANE	5	ug/kg	5	U
108-90-7	CHLOROBENZENE	5	ug/kg	5	U
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U
100-41-4	ETHYLBENZENE	5	ug/kg	5	U
136777-61-2	M+P-XYLENE	5	ug/kg	5	U
95-47-6	O-XYLENE	5	ug/kg	5	U
100-42-5	STYRENE	5	ug/kg	5	U
75-25-2	BROMOFORM	5	ug/kg	5	U
98-82-8	ISOPROPYLBENZENE	5	ug/kg	5	U
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/kg	5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/kg	5	U
108-86-1	BROMOBENZENE	5	ug/kg	5	U
103-65-1	N-PROPYLBENZENE	5	ug/kg	5	U
95-49-8	2-CHLOROTOLUENE	5	ug/kg	5	U
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/kg	5	U
106-43-4	4-CHLOROTOLUENE	5	ug/kg	5	U
98-06-6	TERT-BUTYLBENZENE	5	ug/kg	5	U
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/kg	5	U
135-98-8	SEC-BUTYLBENZENE	5	ug/kg	5	U
541-73-1	1,3-DICHLOROBENZENE	5	ug/kg	5	U
99-87-6	P-ISOPROPYLTOLUENE	5	ug/kg	5	U
106-46-7	1,4-DICHLOROBENZENE	5	ug/kg	5	U
104-51-8	N-BUTYLBENZENE	5	ug/kg	5	U
95-50-1	1,2-DICHLOROBENZENE	5	ug/kg	5	U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/kg	10	U
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/kg	5	U
87-68-3	HEXACHLOROBUTADIENE	5	ug/kg	5	U
91-20-3	NAPHTHALENE	5	ug/kg	5	U
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/kg	5	U

000005

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID: .

Reported on: Thursday, September 04, 1997

Field ID: LABQC	Sample Matrix: Solid	Date Collected: 30-Aug-97	Sample Aliquot: 5
Lab ID: VA970830-1MB	% Moisture: N/A	Date Extracted: 30-Aug-97	Final Volume: 5
	Cleanup Method: NONE	Date Analyzed: 30-Aug-97	Dilution: 1
	Report Basis: NA	Prep Batch: v08188b3	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	44.9	ug/kg	50	90	74 - 134
1868-53-7	DIBROMOFLUOROMETHANE	46.8	ug/kg	50	94	76 - 127
2037-26-5	TOLUENE-D8	48.2	ug/kg	50	96	83 - 115

U = Less than the Reporting Limit

000006

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

Client Project ID:

Reported on: Thursday, September 04, 1997

Field ID: River Soil
Lab ID: 9708247-1

Sample Matrix: Solid
 % Moisture: N/A
 Cleanup Method: NONE
 Report Basis: AS RECEIVED

Date Collected: 20-Aug-97
 Date Extracted: 30-Aug-97
 Date Analyzed: 30-Aug-97
 Prep Batch: v08188b3

Sample Aliquot: 5
 Final Volume: 5
 Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/kg	10	U	
74-87-3	CHLOROMETHANE	10	ug/kg	10	U	
75-01-4	VINYL CHLORIDE	10	ug/kg	10	U	
74-83-9	BROMOMETHANE	10	ug/kg	10	U	
75-00-3	CHLOROETHANE	10	ug/kg	10	U	
75-69-4	TRICHLOROFUOROMETHANE	5	ug/kg	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/kg	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/kg	5	U	
67-64-1	ACETONE	20	ug/kg	20	U	
74-88-4	IODOMETHANE	5	ug/kg	5	U	
75-15-0	CARBON DISULFIDE	5	ug/kg	5	U	
75-09-2	METHYLENE CHLORIDE	6.6	ug/kg	5	B	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/kg	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/kg	5	U	
108-05-4	VINYL ACETATE	20	ug/kg	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
78-93-3	2-BUTANONE	20	ug/kg	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/kg	5	U	
67-66-3	CHLOROFORM	5	ug/kg	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/kg	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/kg	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/kg	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/kg	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/kg	5	U	
71-43-2	BENZENE	5	ug/kg	5	U	
79-01-6	TRICHLOROETHENE	5	ug/kg	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/kg	5	U	
74-95-3	DIBROMOMETHANE	5	ug/kg	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/kg	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/kg	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/kg	20	U	
108-88-3	TOLUENE	5	ug/kg	5	U	

Rule of 20
 200
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000007

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: River Soil
Lab ID: 9708247-1

Sample Matrix: Solid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 20-Aug-97
Date Extracted: 30-Aug-97
Date Analyzed: 30-Aug-97
Prep Batch: v08188b3

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

2016 of 10

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	100
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/kg	5	U	100
591-78-6	2-HEXANONE	20	ug/kg	20	U	400
127-18-4	TETRACHLOROETHENE	5	ug/kg	5	U	100
142-28-9	1,3-DICHLOROPROPANE	5	ug/kg	5	U	100
124-48-1	DIBROMOCHLOROMETHANE	5	ug/kg	5	U	100
106-93-4	1,2-DIBROMOETHANE	5	ug/kg	5	U	100
544-10-5	1-CHLOROHEXANE	5	ug/kg	5	U	100
108-90-7	CHLOROBENZENE	5	ug/kg	5	U	100
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U	100
100-41-4	ETHYLBENZENE	5	ug/kg	5	U	100
136777-61-	M+P-XYLENE	5	ug/kg	5	U	100
95-47-6	O-XYLENE	5	ug/kg	5	U	100
100-42-5	STYRENE	5	ug/kg	5	U	100
75-25-2	BROMOFORM	5	ug/kg	5	U	100
98-82-8	ISOPROPYLBENZENE	5	ug/kg	5	U	100
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/kg	5	U	100
79-34-5	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U	100
108-86-1	BROMOBENZENE	5	ug/kg	5	U	100
103-65-1	N-PROPYLBENZENE	5	ug/kg	5	U	100
95-49-8	2-CHLOROTOLUENE	5	ug/kg	5	U	100
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/kg	5	U	100
106-43-4	4-CHLOROTOLUENE	5	ug/kg	5	U	100
98-06-6	TERT-BUTYLBENZENE	5	ug/kg	5	U	100
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/kg	5	U	100
135-98-8	SEC-BUTYLBENZENE	5	ug/kg	5	U	100
541-73-1	1,3-DICHLOROBENZENE	5	ug/kg	5	U	100
99-87-6	P-ISOPROPYLTOLUENE	5	ug/kg	5	U	100
106-46-7	1,4-DICHLOROBENZENE	5	ug/kg	5	U	100
104-51-8	N-BUTYLBENZENE	5	ug/kg	5	U	100
95-50-1	1,2-DICHLOROBENZENE	5	ug/kg	5	U	100
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/kg	10	U	200
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/kg	5	U	100
87-68-3	HEXACHLOROBUTADIENE	5	ug/kg	5	U	100
91-20-3	NAPHTHALENE	5	ug/kg	5	U	100
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/kg	5	U	100

000003

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: Delisted Soil
Lab ID: 9708247-2

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: AS RECEIVED

Date Collected: 20-Aug-97

Date Extracted: 30-Aug-97

Date Analyzed: 30-Aug-97

Prep Batch: v08188b3

Sample Aliquot: 5

Final Volume: 5

Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote	<i>Rpt of</i>
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/kg	10	U	1	200
74-87-3	CHLOROMETHANE	10	ug/kg	10	U		200
75-01-4	VINYL CHLORIDE	10	ug/kg	10	U		200
74-83-9	BROMOMETHANE	10	ug/kg	10	U		200
75-00-3	CHLOROETHANE	10	ug/kg	10	U		200
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/kg	5	U		100
75-35-4	1,1-DICHLOROETHENE	5	ug/kg	5	U		100
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/kg	5	U		100
67-64-1	ACETONE	59	ug/kg	20			400
74-88-4	IODOMETHANE	5	ug/kg	5	U		100
75-15-0	CARBON DISULFIDE	5	ug/kg	5	U		100
75-09-2	METHYLENE CHLORIDE	2.8	ug/kg	5	J		100
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/kg	5	U		100
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/kg	5	U		100
75-34-3	1,1-DICHLOROETHANE	5	ug/kg	5	U		100
108-05-4	VINYL ACETATE	20	ug/kg	20	U		400
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/kg	5	U		100
78-93-3	2-BUTANONE	13	ug/kg	20	J,B		400
74-97-5	BROMOCHLOROMETHANE	5	ug/kg	5	U		100
67-66-3	CHLOROFORM	5	ug/kg	5	U		100
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/kg	5	U		100
594-20-7	2,2-DICHLOROPROPANE	5	ug/kg	5	U		100
56-23-5	CARBON TETRACHLORIDE	5	ug/kg	5	U		100
563-58-6	1,1-DICHLOROPROPENE	5	ug/kg	5	U		100
107-06-2	1,2-DICHLOROETHANE	5	ug/kg	5	U		100
71-43-2	BENZENE	5	ug/kg	5	U		100
79-01-6	TRICHLOROETHENE	5	ug/kg	5	U		100
78-87-5	1,2-DICHLOROPROPANE	5	ug/kg	5	U		100
74-95-3	DIBROMOMETHANE	5	ug/kg	5	U		100
75-27-4	BROMODICHLOROMETHANE	5	ug/kg	5	U		100
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/kg	10	U		200
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/kg	5	U		100
108-10-1	4-METHYL-2-PENTANONE	20	ug/kg	20	U		400
108-88-3	TOLUENE	5	ug/kg	5	U		100

000009

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: Delisted Soil

Lab ID: 9708247-2

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: AS RECEIVED

Date Collected: 20-Aug-97

Date Extracted: 30-Aug-97

Date Analyzed: 30-Aug-97

Prep Batch: v08188b3

Sample Aliquot: 5

Final Volume: 5

Dilution: 1

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10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	100
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/kg	5	U	100
591-78-6	2-HEXANONE	20	ug/kg	20	U	400
127-18-4	TETRACHLOROETHENE	5	ug/kg	5	U	100
142-28-9	1,3-DICHLOROPROPANE	5	ug/kg	5	U	100
124-48-1	DIBROMOCHLOROMETHANE	5	ug/kg	5	U	100
106-93-4	1,2-DIBROMOETHANE	5	ug/kg	5	U	100
544-10-5	1-CHLOROHEXANE	5	ug/kg	5	U	100
108-90-7	CHLOROBENZENE	5	ug/kg	5	U	100
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U	100
100-41-4	ETHYLBENZENE	5	ug/kg	5	U	100
136777-61-	M+P-XYLENE	5	ug/kg	5	U	100
95-47-6	O-XYLENE	5	ug/kg	5	U	100
100-42-5	STYRENE	5	ug/kg	5	U	100
75-25-2	BROMOFORM	5	ug/kg	5	U	100
98-82-8	ISOPROPYLBENZENE	5	ug/kg	5	U	100
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/kg	5	U	100
79-34-5	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U	100
108-86-1	BROMOBENZENE	5	ug/kg	5	U	100
103-65-1	N-PROPYLBENZENE	5	ug/kg	5	U	100
95-49-8	2-CHLOROTOLUENE	5	ug/kg	5	U	100
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/kg	5	U	100
106-43-4	4-CHLOROTOLUENE	5	ug/kg	5	U	100
98-06-6	TERT-BUTYLBENZENE	5	ug/kg	5	U	100
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/kg	5	U	100
135-98-8	SEC-BUTYLBENZENE	5	ug/kg	5	U	100
541-73-1	1,3-DICHLOROBENZENE	5	ug/kg	5	U	100
99-87-6	P-ISOPROPYLTOLUENE	5	ug/kg	5	U	100
106-46-7	1,4-DICHLOROBENZENE	5	ug/kg	5	U	100
104-51-8	N-BUTYLBENZENE	5	ug/kg	5	U	100
95-50-1	1,2-DICHLOROBENZENE	5	ug/kg	5	U	100
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/kg	10	U	200
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/kg	5	U	100
87-68-3	HEXACHLOROBUTADIENE	5	ug/kg	5	U	100
91-20-3	NAPHTHALENE	5	ug/kg	5	U	100
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/kg	5	U	100

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Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: LABQC
Lab ID: VA970901-1MB

Sample Matrix: Solid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: NA

Date Collected: 01-Sep-97
Date Extracted: 01-Sep-97
Date Analyzed: 01-Sep-97
Prep Batch: v08247b1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/kg	10	U	
74-87-3	CHLOROMETHANE	10	ug/kg	10	U	
75-01-4	VINYL CHLORIDE	10	ug/kg	10	U	
74-83-9	BROMOMETHANE	10	ug/kg	10	U	
75-00-3	CHLOROETHANE	10	ug/kg	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/kg	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/kg	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/kg	5	U	
67-64-1	ACETONE	20	ug/kg	20	U	
74-88-4	IODOMETHANE	5	ug/kg	5	U	
75-15-0	CARBON DISULFIDE	5	ug/kg	5	U	
75-09-2	METHYLENE CHLORIDE	16	ug/kg	5		
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/kg	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/kg	5	U	
108-05-4	VINYL ACETATE	20	ug/kg	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/kg	5	U	
78-93-3	2-BUTANONE	20	ug/kg	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/kg	5	U	
67-66-3	CHLOROFORM	5	ug/kg	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/kg	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/kg	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/kg	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/kg	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/kg	5	U	
71-43-2	BENZENE	5	ug/kg	5	U	
79-01-6	TRICHLOROETHENE	5	ug/kg	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/kg	5	U	
74-95-3	DIBROMOMETHANE	5	ug/kg	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/kg	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/kg	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/kg	20	U	
108-88-3	TOLUENE	5	ug/kg	5	U	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/kg	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/kg	5	U	
591-78-6	2-HEXANONE	20	ug/kg	20	U	

000011

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: LABQC
Lab ID: VA970901-1MB

Sample Matrix: Solid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: NA

Date Collected: 01-Sep-97
Date Extracted: 01-Sep-97
Date Analyzed: 01-Sep-97
Prep Batch: v08247b1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

127-18-4	TETRACHLOROETHENE	5	ug/kg	5	U
142-28-9	1,3-DICHLOROPROPANE	5	ug/kg	5	U
124-48-1	DIBROMOCHLOROMETHANE	5	ug/kg	5	U
106-93-4	1,2-DIBROMOETHANE	5	ug/kg	5	U
544-10-5	1-CHLOROHEXANE	5	ug/kg	5	U
108-90-7	CHLOROBENZENE	5	ug/kg	5	U
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/kg	5	U
100-41-4	ETHYLBENZENE	5	ug/kg	5	U
136777-61-2	M+P-XYLENE	5	ug/kg	5	U
95-47-6	O-XYLENE	5	ug/kg	5	U
100-42-5	STYRENE	5	ug/kg	5	U
75-25-2	BROMOFORM	5	ug/kg	5	U
98-82-8	ISOPROPYLBENZENE	5	ug/kg	5	U
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/kg	5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/kg	5	U
108-86-1	BROMOBENZENE	5	ug/kg	5	U
103-65-1	N-PROPYLBENZENE	5	ug/kg	5	U
95-49-8	2-CHLOROTOLUENE	5	ug/kg	5	U
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/kg	5	U
106-43-4	4-CHLOROTOLUENE	5	ug/kg	5	U
98-06-6	TERT-BUTYLBENZENE	5	ug/kg	5	U
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/kg	5	U
135-98-8	SEC-BUTYLBENZENE	5	ug/kg	5	U
541-73-1	1,3-DICHLOROBENZENE	5	ug/kg	5	U
99-87-6	P-ISOPROPYLTOLUENE	5	ug/kg	5	U
106-46-7	1,4-DICHLOROBENZENE	5	ug/kg	5	U
104-51-8	N-BUTYLBENZENE	5	ug/kg	5	U
95-50-1	1,2-DICHLOROBENZENE	5	ug/kg	5	U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/kg	10	U
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/kg	5	U
87-68-3	HEXACHLOROBUTADIENE	5	ug/kg	5	U
91-20-3	NAPHTHALENE	5	ug/kg	5	U
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/kg	5	U

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Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: Evap. Pond Bottoms

Lab ID: 9708247-3

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: AS RECEIVED

Date Collected: 20-Aug-97

Date Extracted: 01-Sep-97

Date Analyzed: 01-Sep-97

Prep Batch: v08247b1

Sample Aliquot: 5

Final Volume: 5

Dilution: 5

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	50	ug/kg	50	U	1000
74-87-3	CHLOROMETHANE	50	ug/kg	50	U	1000
75-01-4	VINYL CHLORIDE	50	ug/kg	50	U	1000
74-83-9	BROMOMETHANE	50	ug/kg	50	U	1000
75-00-3	CHLOROETHANE	50	ug/kg	50	U	1000
75-69-4	TRICHLOROFLUOROMETHANE	25	ug/kg	25	U	500
75-35-4	1,1-DICHLOROETHENE	25	ug/kg	25	U	500
76-13-1	TRICHLOROTRIFLUOROETHANE	25	ug/kg	25	U	500
67-64-1	ACETONE	340	ug/kg	100		2000
74-88-4	IODOMETHANE	25	ug/kg	25	U	500
75-15-0	CARBON DISULFIDE	25	ug/kg	25	U	500
75-09-2	METHYLENE CHLORIDE	17	ug/kg	25	J,B	500
156-60-5	TRANS-1,2-DICHLOROETHENE	25	ug/kg	25	U	500
1634-04-4	METHYL TERTIARY BUTYL ETHER	25	ug/kg	25	U	500
75-34-3	1,1-DICHLOROETHANE	25	ug/kg	25	U	500
108-05-4	VINYL ACETATE	100	ug/kg	100	U	2000
156-59-2	CIS-1,2-DICHLOROETHENE	25	ug/kg	25	U	500
78-93-3	2-BUTANONE	95	ug/kg	100	J	2000
74-97-5	BROMOCHLOROMETHANE	25	ug/kg	25	U	500
67-66-3	CHLOROFORM	25	ug/kg	25	U	500
71-55-6	1,1,1-TRICHLOROETHANE	25	ug/kg	25	U	500
594-20-7	2,2-DICHLOROPROPANE	25	ug/kg	25	U	500
56-23-5	CARBON TETRACHLORIDE	25	ug/kg	25	U	500
563-58-6	1,1-DICHLOROPROPENE	25	ug/kg	25	U	500
107-06-2	1,2-DICHLOROETHANE	25	ug/kg	25	U	500
71-43-2	BENZENE	25	ug/kg	25	U	500
79-01-6	TRICHLOROETHENE	25	ug/kg	25	U	500
78-87-5	1,2-DICHLOROPROPANE	25	ug/kg	25	U	500
74-95-3	DIBROMOMETHANE	25	ug/kg	25	U	500
75-27-4	BROMODICHLOROMETHANE	25	ug/kg	25	U	500
110-75-8	2-CHLOROETHYL VINYL ETHER	50	ug/kg	50	U	1000
10061-01-5	CIS-1,3-DICHLOROPROPENE	25	ug/kg	25	U	500
108-10-1	4-METHYL-2-PENTANONE	20	ug/kg	100	J	2000
108-88-3	TOLUENE	25	ug/kg	25	U	500

000013

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: Evap. Pond Bottoms

Lab ID: 9708247-3

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: AS RECEIVED

Date Collected: 20-Aug-97

Date Extracted: 01-Sep-97

Date Analyzed: 01-Sep-97

Prep Batch: v08247b1

Sample Aliquot: 5

Final Volume: 5

Dilution: 5

ROLE OF 20

10061-02-6	TRANS-1,3-DICHLOROPROPENE	25	ug/kg	25	U	500
79-00-5	1,1,2-TRICHLOROETHANE	25	ug/kg	25	U	500
591-78-6	2-HEXANONE	100	ug/kg	100	U	2000
127-18-4	TETRACHLOROETHENE	25	ug/kg	25	U	500
142-28-9	1,3-DICHLOROPROPANE	25	ug/kg	25	U	500
124-48-1	DIBROMOCHLOROMETHANE	25	ug/kg	25	U	500
106-93-4	1,2-DIBROMOETHANE	25	ug/kg	25	U	500
544-10-5	1-CHLOROHEXANE	25	ug/kg	25	U	500
108-90-7	CHLOROBENZENE	25	ug/kg	25	U	500
630-20-6	1,1,1,2-TETRACHLOROETHANE	25	ug/kg	25	U	500
100-41-4	ETHYLBENZENE	25	ug/kg	25	U	500
136777-61-	M+P-XYLENE	25	ug/kg	25	U	500
95-47-6	O-XYLENE	25	ug/kg	25	U	500
100-42-5	STYRENE	25	ug/kg	25	U	500
75-25-2	BROMOFORM	25	ug/kg	25	U	500
98-82-8	ISOPROPYLBENZENE	25	ug/kg	25	U	500
96-18-4	1,2,3-TRICHLOROPROPANE	25	ug/kg	25	U	500
79-34-5	1,1,1,2-TETRACHLOROETHANE	25	ug/kg	25	U	500
108-86-1	BROMOBENZENE	25	ug/kg	25	U	500
103-65-1	N-PROPYLBENZENE	25	ug/kg	25	U	500
95-49-8	2-CHLOROTOLUENE	25	ug/kg	25	U	500
108-67-8	1,3,5-TRIMETHYLBENZENE	25	ug/kg	25	U	500
106-43-4	4-CHLOROTOLUENE	25	ug/kg	25	U	500
98-06-6	TERT-BUTYLBENZENE	25	ug/kg	25	U	500
95-63-6	1,2,4-TRIMETHYLBENZENE	25	ug/kg	25	U	500
135-98-8	SEC-BUTYLBENZENE	25	ug/kg	25	U	500
541-73-1	1,3-DICHLOROBENZENE	25	ug/kg	25	U	500
99-87-6	P-ISOPROPYLTOLUENE	25	ug/kg	25	U	500
106-46-7	1,4-DICHLOROBENZENE	25	ug/kg	25	U	500
104-51-8	N-BUTYLBENZENE	25	ug/kg	25	U	500
95-50-1	1,2-DICHLOROBENZENE	25	ug/kg	25	U	500
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	50	ug/kg	50	U	500
120-82-1	1,2,4-TRICHLOROBENZENE	25	ug/kg	25	U	500
87-68-3	HEXACHLOROBUTADIENE	25	ug/kg	25	U	500
91-20-3	NAPHTHALENE	25	ug/kg	25	U	500
87-61-6	1,2,3-TRICHLOROBENZENE	25	ug/kg	25	U	500

000014

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

Field ID: LABQC

Lab ID: VA970901-1MB

Sample Matrix: Solid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: NA

Date Collected: 01-Sep-97

Date Extracted: 01-Sep-97

Date Analyzed: 01-Sep-97

Prep Batch: v08247b1

Sample Aliquot: 5

Final Volume: 5

Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	48.5	ug/kg	50	97	74 - 134
1868-53-7	DIBROMOFLUOROMETHANE	49.5	ug/kg	50	99	76 - 127
2037-26-5	TOLUENE-D8	52.8	ug/kg	50	106	83 - 115

U = Less than the Reporting Limit

000015

Volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID: .

Reported on: Thursday, September 04, 1997

BS ID: VA970830-1LCS	Sample Matrix: Solid	Date Collected: 30-Aug-97	Sample Aliquot: 5
BSD ID: VA970830-1LCSD	% Moisture: N/A	Date Extracted: 30-Aug-97	Final Volume: 5
	Cleanup Method: NONE	Date Analyzed: 30-Aug-97	Dilution: 1
	Report Basis: N/A	Prep Batch: v08188b3	

CASNO	Target Analyte	Spike Added	BS Result	Units	Reporting Limit	BS % Rec.	Control Limits
75-35-4	1,1-DICHLOROETHENE	20	17.9	ug/kg	5	89	59 - 136
71-43-2	BENZENE	20	19.3	ug/kg	5	97	76 - 123
79-01-6	TRICHLOROETHENE	20	20	ug/kg	5	100	74 - 127
108-88-3	TOLUENE	20	19.9	ug/kg	5	99	75 - 124
108-90-7	CHLOROBENZENE	20	20.3	ug/kg	5	101	75 - 124

CASNO	Target Analyte	Spike Added	BSD Result	Units	Reporting Limit	BSD % Rec.	RPD	RPD Limits
75-35-4	1,1-DICHLOROETHENE	20	17	ug/kg	5	85	5	25
71-43-2	BENZENE	20	17.7	ug/kg	5	89	9	23
79-01-6	TRICHLOROETHENE	20	18.4	ug/kg	5	92	8	25
108-88-3	TOLUENE	20	18.3	ug/kg	5	92	7	24
108-90-7	CHLOROBENZENE	20	18.4	ug/kg	5	92	9	24

Surrogate Recovery BS/BS

CASNO	Target Analyte	Spike Added	BS % Rec.	BSD % Rec.	RPD	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	50	90	90	0	74 - 134
1868-53-7	DIBROMOFLUOROMETHANE	50	99	97	2	76 - 127
2037-26-5	TOLUENE-D8	50	96	92	4	83 - 115

000016

Volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9708247

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Thursday, September 04, 1997

BS ID: VA970901-1LCS	Sample Matrix: Solid	Date Collected: 01-Sep-97	Sample Aliquot: 5
BSD ID: VA970901-1LCSD	% Moisture: N/A	Date Extracted: 01-Sep-97	Final Volume: 5
	Cleanup Method: NONE	Date Analyzed: 01-Sep-97	Dilution: 1
	Report Basis: N/A	Prep Batch: v08247b1	

CASNO	Target Analyte	Spike Added	BS Result	Units	Reporting Limit	BS % Rec.	Control Limits
75-35-4	1,1-DICHLOROETHENE	20	19.9	ug/kg	5	100	59 - 136
71-43-2	BENZENE	20	19.9	ug/kg	5	99	76 - 123
79-01-6	TRICHLOROETHENE	20	20.1	ug/kg	5	101	74 - 127
108-88-3	TOLUENE	20	21	ug/kg	5	105	75 - 124
108-90-7	CHLOROBENZENE	20	19.3	ug/kg	5	96	75 - 124

CASNO	Target Analyte	Spike Added	BSD Result	Units	Reporting Limit	BSD % Rec.	RPD	RPD Limits
75-35-4	1,1-DICHLOROETHENE	20	18.9	ug/kg	5	94	6	25
71-43-2	BENZENE	20	19.1	ug/kg	5	96	3	23
79-01-6	TRICHLOROETHENE	20	18.2	ug/kg	5	91	10	25
108-88-3	TOLUENE	20	19.3	ug/kg	5	97	8	24
108-90-7	CHLOROBENZENE	20	18.5	ug/kg	5	92	4	24

Surrogate Recovery BS/BS

CASNO	Target Analyte	Spike Added	BS % Rec.	BSD % Rec.	RPD	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	50	105	102	3	74 - 134
1868-53-7	DIBROMOFLUOROMETHANE	50	102	102	0	76 - 127
2037-26-5	TOLUENE-D8	50	105	101	4	83 - 115

000017



**PARAGON
ANALYTICS, INC.**
AN EMPLOYEE OWNED SMALL BUSINESS



**QUALITY ASSURANCE
DATA REVIEW**

Date: September 17, 1997

Paragon Workorder: 97-08-247

Analysis: General Chemistry Analysis

The data contained in the following report have been reviewed and approved by the personnel listed below:

Victoria L. Bayly
Project Manager

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed.

A case narrative ___ is XX is not included with this report.



**PHENOLS
STANDARD METHODS 5530 D**

Lab Name: Paragon Analytics, Inc.

Date Collected: August 20, 1997

Client Name: Giant Refining Company

Date of Analysis: September 5, 1997

Client Project ID: Not Submitted

Sample Matrix: Soil

Lab Sample ID: 97-08-247

SAMPLES

Sample ID	Client ID	Method	Concentration (ppm)	Detection (ppm)	
Lab Blank	NA	5530-D	<0.05	0.05	1.00
97-08-247-01	River Soil	5530-D	<1.0	1.0	20.0
97-08-247-02	Delisted Soil	5530-D	2.8	1.0	20.0
97-08-247-03	Evap. Pond Bottoms	5530-D	<2.0	2.0*	40.0

*Detection limit elevated due to matrix interferences.



**PHENOLS
STANDARD METHODS 5530 D**

Lab Name: Paragon Analytics, Inc.

Date Collected: August 20 , 1997

Client Name: Giant Refinery Company

Date of Analysis: September 5, 1997

Client Project ID: Not Submitted

Sample Matrix: Soil

Lab Sample ID: 97-08-247

DUPLICATE

Sample ID	Client ID	Sample Conc (ppm)	Duplicate Conc (ppm)	Relative Percent Deviation(%)
97-08-247-01	River Soil	<1.0	<1.0	<20

MATRIX SPIKE

Sample ID	Client Sample ID	Spike Amount (ppm)	Percent Recovery	QC Acceptance Limits (%)
97-08-247-01	River Soil	0.40	102	80 - 120

LAB CONTROL SAMPLE

Sample ID	Client ID	LCS True Value (ppm)	LCS Conc . Found (ppm)	Confidence Interval (ppm)
Independent Reference Material	NA	0.116	0.095	0.093 - 0.139

*ACCESSION NUMBER (LAB ID) 9708247

REPORT TO: LYNN SHELTON

COMPANY: CIANT RECEIVING CO.

ADDRESS: P.O. BOX 159

BLOOMFIELD, NM

87413

SAMPLER: [Signature]

(505) 632 4163 (505) 632 3911

PHONE NO.

FAX NO.

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Oil & Grease 9070/9071/413.2	418.1 - TRPH	8015 Mod. - Gasoline	8015 Mod. - Diesel	8015m/8020 - Gasoline/BETX	8020 - BETX only	8240/8260 - GC/MS VOC's	8270 - GC/MS SVOC's	8080 - Pesticides/PCB's	8080 - PCB's only	8310/610 - HPLC PNA's	8150 - Herbicides	8141/614 - OP Pesticides	TOX - EOX - AOX - TX	Total Metals *(specify in comments)	TCLP: *(specify parameters in comments)	Gross Alpha / Beta	Gross Gamma	Gamma Spec	Isotopic Plutonium	Isotopic Uranium	Total Uranium (KPA)	Radium 226 / 228	Tritium (H3)	Strontium 89 / 90	8315 - Formaldehyde	% Moisture	WQCC LIST *	pH	Number of Containers		
RIVER SOIL	8/20	0950	SOIL	01																																2
DELISTED SOIL	8/20	1025	SOIL	02																																2
EVAP. POND																																				2
BOTTOMS	8/20	1005	SOIL	03																																2
NOURP-E	8/20	0955	H ₂ O	04						X																										3
RIVER-B	8/20	0940	H ₂ O	05						X																										2
INJECTION WELL	8/20	1015	H ₂ O	06																																1
TRIP BLANK				07																																1

PROJECT INFORMATION	SAMPLE RECEIPT	RELINQUISHED BY:	RECEIVED BY:	DATE	TIME	DATE	TIME
PROJECT NUMBER:	TOTAL NO. OF CONTAINERS:	[Signature]	[Signature]				
PROJECT NAME:	CHAIN OF CUSTODY SEALS Y/N:	[Signature]	[Signature]				
P.O. NUMBER:	SEALS INTACT Y/N/NA:	[Signature]	[Signature]				
TAT: <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> RUSH DUE	REC'D GOOD COND./COULD?	[Signature]	[Signature]				
SAMPLE DISPOSAL: <input checked="" type="checkbox"/> HAZ WASTE \$5.00 ea	RAD CHEM \$15.00 ea	[Signature]	[Signature]				
	RETURN	[Signature]	[Signature]				

COMMENTS: * SEE ATTACHED LIST

RECEIVED BY:	DATE	TIME	DATE	TIME
[Signature]				
[Signature]				
[Signature]				

* DO NOT WRITE IN SHADED AREAS



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE
AZTEC NM 87410
(505) 334-6178 FAX: (505) 334-6170
[http://emnr.d.state.nm.us/ocd/District III/district.htm](http://emnr.d.state.nm.us/ocd/District%20III/district.htm)

GARY E. JOHNSON
GOVERNOR

Jennifer A. Salisbury
CABINET SECRETARY

Certified Receipt #P 471 215 204

January 27, 1998

Giant Refining Company-Bloomfield GW-001
Attn Lynn Shelton
Environmental Manager
PO Box 159
Bloomfield NM 87413

RE: Initial Accident Report for an Accident Which Occurred 1/09/98

Dear Mr. Shelton:

The initial report is being returned unapproved.

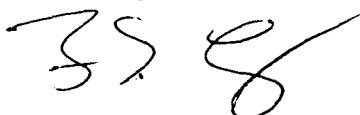
1. Although the cover letter was signed, the C-141 lacks an official signature.
2. The drawing referred to is not attached to the C-141.
3. There are volume discrepancies between the cover letter and the C-141 report form.
4. The entire volume of the release is used to determine whether or not notice is required. The bar ditch which received fluid is a watercourse by OCD definition and on a public right-of-way outside your Discharge Plan Facility.
5. The description of the cause, remedial action and initial cleanup steps lack enough detail.

Mr. Lynn Shelton
Page Two
January 27, 1998

Final approval of the remedial action and cleanup will be under Rule 116(D) through the NMOCD Environmental Bureau which has authority under Giant Refining Company-Bloomfield's Discharge Plan GW-1.

Please feel free to call me at (505) 334-6178 Ext 11 or Denny Foust at Ext 15 if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'FTC' followed by a stylized flourish.

Frank T. Chavez
District Supervisor

FTC\sh

Enclosures (2)

xc: Environmental Bureau-Santa Fe
Environmental File
DGF File



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413

505
632-8013

RECEIVED
JAN 21 1998

OIL CON. DIV.
DIST. 3

January 19, 1998

Denny Foust
NMOCD - Aztec
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: 116 Spill Report Giant Refining Company - Bloomfield GW-001

Dear Mr. Foust:

Giant Refining Company - Bloomfield submits two C-141 report forms regarding a recent release at this facility. None of the released material left the refinery property.

The release consisted of approximately 70 barrels of water, sulfur and iron chelate, with over 45 barrels recovered and taken to the process wastewater system at the refinery.

This material had been removed from the sulfur recovery unit as a result of maintenance operations there. This combination of sulfur, iron chelate and water is known by Giant to be non-hazardous.

Giant is proceeding with cleanup activities.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Corporate Counsel, Giant Industries, Inc.

District I - (505) 393-6161
 P. O. Box 1940
 Hobbs, NM 88241-1980
 District II - (505) 748-1283
 811 South First
 Artesia, NM 88210
 District III - (505) 334-6178
 1000 Rio Brazos Road
 Aztec, NM 87410
 District IV - (505) 827-7131

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
 2040 South Pacheco Street
 Santa Fe, New Mexico 87505
 (505) 827-7131

Form C-141
 Originated 2/13/97

Submit 2 copies to
 Appropriate District
 Office in accordance
 with Rule 116

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name Giant Refining Company - Bloomfield		Contact Lynn Shelton
Address #50 County Road 4990		Telephone No. (505) 632-8013
Facility Name Same		Facility Type Refinery
Surface Owner N/A	Mineral Owner N/A	Lease No. N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	27	29N	11W					San Juan

NATURE OF RELEASE

Type of Release Water	Volume of Release 70 bbls.	Volume Recovered 50 bbls.
Source of Release Water from vacuum truck	Date and Hour of Occurrence 4:00 pm 1/9/98	Date and Hour of Discovery Same
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	

RECEIVED
 JAN 21 1998
 OIL CONSERVATION DIVISION

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
 An 80 bbl. load was removed from sulfur recovery unit and consisted of water, sulfur and iron chelate. The load was dumped on concrete (to facilitate handling), overflowed pad and ran into ditch on property. Water was vacuumed up and sent to process wastewater system.

Describe Area Affected and Cleanup Action Taken.*
 Excess water was removed, soil was left to dry out pending removal of material. Material released is known to be non-hazardous and will be handled as such. (see attached drawing)

Describe General Conditions Prevailing (Temperature, Precipitation, etc.).*
 Clear, cold, 40-45°F, 5 mph wind from SSW, dry

I hereby certify that the information given above is true and complete to the best of my knowledge and belief. Signature:	OIL CONSERVATION DIVISION	
Printed Name: Lynn Shelton	Approved by District Supervisor:	
Title: Environmental Manager	Approval Date:	Expiration Date:
Date: 1/19/98 Phone: (505) 632-8013	Conditions of Approval:	Attached <input type="checkbox"/>

* Attach Additional Sheets If Necessary



PARAGON ANALYTICS, INC.

225 Commerce Drive ♦ Fort Collins, CO 80524 ♦ (800) 443-1511 ♦ (970) 490-1511 ♦ FAX (970) 490-1522

February 2, 1998

Ms. Lynn Shelton
Giant Refining Company
#50 Country Road 4990/ PO Box 15
Bloomfield, NM 87431

RE: Paragon Workorder: 98-01-152
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Ms. Shelton:

Two soil samples were received from Giant Refining Company on January 1, 1998. The samples were scheduled for the following analyses:

GC/MS Volatiles	pages 1-8
GC/MS Semivolatiles	pages 1-9
Metals	pages 1-12

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in Paragon Analyticals, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analyticals, Inc.
Victoria Bayly
Project Manager

VB/arp
Enclosure: Report



PARAGON ANALYTICALS, INC.
 225 Commerce Drive Ft. Collins, CO 80524

(800) 443-1511 or (970) 490-1511
 (970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 1/20/98 Page 1 of 1

*ACCESSION NUMBER (LAB ID) 9801152

REPORT TO: LYNN SHELTON

COMPANY: GIANT REFINING - BLOOMFIELD

ADDRESS: P.O. BOX 159
BLOOMFIELD, NM 87413

SAMPLER: [Signature]

PHONE NO. (505) 632 9013 FAX NO. (505) 632 3911

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
<u>SULFUR SOIL</u>	<u>1/20</u>	<u>205</u>	<u>SOIL</u>	<u>01/03</u>
<u>BACKLROUND SOIL</u>	<u>1/20</u>	<u>230</u>	<u>SOIL</u>	<u>02</u>

Note: Strong Petroleum-like odor in soils

Oil & Grease 9070/9071/413.2	418.1 - TRPH	8015 Mod. - Gasoline	8015 Mod. - Diesel	8015m/8020 - Gasoline/BETX	8020 - BETX only	8240/8260 - GC/MS VOC's	8270 - GC/MS SVOC's	8080 - Pesticides/PCB's	8080 - PCB's only	8310/610 - HPLC PNA's	8150 - Herbicides	8141/614 - OP Pesticides	TOX - EOX - AOX - TX	Total Metals *(specify in comments)	TCLP: *(specify parameters in comments)	Gross Alpha / Beta	Gross Gamma	Gamma Spec	Isotopic Plutonium	Isotopic Uranium	Total Uranium (KPA)	Radium 226 / 228	Tritium (H3)	Strontium 89 / 90	8315 - Formaldehyde	% Moisture	Number of Containers	
														<u>6010</u>														

PROJECT INFORMATION

PROJECT NUMBER: _____

PROJECT NAME: _____

P.O. NUMBER: _____

STANDARD: RUSH FEE 2 WKS

HAZ WASTE \$5.00 ea RUSH FEE 2 WKS

HAZ WASTE \$15.00 ea RUSH FEE 2 WKS

RETOUR:

SEALS INTACT? Y/N/NA

REC'D GOOD COND./COLD?

RECEIVED BY: [Signature] 4:00 PM 1/20/98

RECEIVED BY: [Signature] 6:45 1/21/98

RECEIVED BY: [Signature] 12:19 1/21/98

COMMENTS: * TCLP - LESS HERBS + PESTS
* * TOTAL METALS - CHROME, LEAD,
ALUMINUM, CADMIUM, MANGANESE, IRON,
MAGNESIUM, BARIUM, SELENIUM, ARSENIC

* DO NOT WRITE IN SHADED AREAS

DISTRIBUTION: White, Canary, PARAGON ANALYTICALS, INC. Pink - Originator

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: Grant Ref. - BlmHd

SHIPPING CONTAINER #: cooler

WORKORDER NO. 9801151 / 9801152 INITIALS: B DATE: 1/21/98

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature _____ b. Lot No's. _____ c. Airbill Number _____		Yes	<u>No</u>
2.	Are custody seals on the cooler intact? If so, how many <u>1</u>	N/A	<u>Yes</u>	No
3.	Are custody seals on sample containers intact?	<u>N/A</u>	<u>Yes</u>	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		<u>Yes</u>	No
5.	Is the COC complete? Relinquished: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Requested Analysis: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	N/A	<u>Yes</u>	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Sample ID's: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Matrix: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No. of Containers: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		<u>Yes</u>	No
7.	Are the samples requiring chemical preservation preserved correctly?	N/A	<u>Yes</u>	No
8.	Is there enough sample? If so, are they in the proper containers?		<u>Yes</u>	No
9.	Are all samples within holding times for the requested analyses?		<u>Yes</u>	No
10.	Were the sample(s) shipped on ice?	N/A	<u>Yes</u>	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		<u>Yes</u>	No
12.	Are samples requiring no headspace, headspace free?	N/A	<u>Yes</u>	No
13.	Do the samples require quarantine?		<u>Yes</u>	<u>No</u>
14.	Do samples require Paragon disposal?		<u>Yes</u>	No
15.	Did the client return any unused bottles?		Yes	<u>No</u>

Describe "NO" items (except No's 1, 13, & 14): _____

Was the client contacted? Yes _____ No _____
If yes, Date: _____ Name of person contacted: _____

Describe actions taken or client instructions: _____

Group Leader's Signature: _____ Date: _____

Cooler Temperature: 6°C



Paragon Analytics, Inc.

GC/MS Volatiles Case Narrative

Giant Refining Company

Order Number - 9801152

1. This report consists of 1 soil sample received by Paragon on January 21, 1998.
2. These sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the sample was leached using the TCLP ZHE extraction procedure specified in Method 1311. The TCLP leachate was then analyzed by purging the sample using purge and trap procedures based on Method 5030.
3. The sample was analyzed using GC/MS with a RTX-624 capillary column according to protocols based on SW-846 Method 8260B. All positive results were quantitated with the average response of the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. The sample was analyzed within the established holding times.
5. There were no target compounds detected in the method blank..
6. All laboratory control spike and laboratory control spike duplicate recoveries and RPDs were within the acceptance criteria with the exception of the RED for 2-butanone. The recoveries in both spike were within the acceptance criteria. There were no hits detected in the sample, so no further action was required.
7. Matrix spike and matrix spike duplicate data were not requested by this client, so a laboratory control spike and laboratory control spike duplicate were performed instead.



8. All surrogate recoveries were within acceptance criteria.
9. All internal standard recoveries were within acceptance criteria.
10. All initial calibration criteria were within acceptance criteria. Method 8260 states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.
12. All continuing calibration criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Phil Tallarico
GC/MS Analyst

1-29-98
Date

Reviewer's Initials

1-29-98
Date

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9801152

Client Name: Giant Refining Company

Client Project Name:

Client Project Number: None Given

Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SULFUR/SOIL	9801152-1		Soil	1/20/98	14:05
BACKGROUND/SOIL	9801152-2		Soil	1/20/98	14:30
SULFUR/SOIL	9801152-3		Leachate	1/20/98	

Volatile Organics by GC/MS

Method SW8260

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID: None given

Reported on: Wednesday, January 28, 1998

Field ID: LABQC	Sample Matrix: liquid	Date Collected: 22-Jan-98	Sample Aliquot: 5
Lab ID: VB980123-1MB	% Moisture: N/A	Date Extracted: 23-Jan-98	Final Volume: 5
	Cleanup Method: NONE	Date Analyzed: 23-Jan-98	Dilution: 1
	Report Basis: NA	Prep Batch: v01119	

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-01-4	VINYL CHLORIDE	0.01	mg/l	0.01	U	
75-35-4	1,1-DICHLOROETHENE	0.005	mg/l	0.005	U	
78-93-3	2-BUTANONE	0.02	mg/l	0.02	U	
67-66-3	CHLOROFORM	0.005	mg/l	0.005	U	
56-23-5	CARBON TETRACHLORIDE	0.005	mg/l	0.005	U	
107-06-2	1,2-DICHLOROETHANE	0.005	mg/l	0.005	U	
71-43-2	BENZENE	0.005	mg/l	0.005	U	
79-01-6	TRICHLOROETHENE	0.005	mg/l	0.005	U	
127-18-4	TETRACHLOROETHENE	0.005	mg/l	0.005	U	
108-90-7	CHLOROBENZENE	0.005	mg/l	0.005	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	0.0507	mg/l	0.05	101	86 - 115
1868-53-7	DIBROMOFLUOROMETHANE	0.0485	mg/l	0.05	97	86 - 118
2037-26-5	TOLUENE-D8	0.0543	mg/l	0.05	109	88 - 110

U = Less than the Reporting Limit

Volatile Organics by GC/MS

Method SW8260--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Wednesday, January 28, 1998

Field ID: SULFUR/SOIL	Sample Matrix: liquid	Date Collected: 20-Jan-98	Sample Aliquot: 5
Lab ID: 9801152-3	% Moisture: N/A	Date Extracted: 23-Jan-98	Final Volume: 5
	Cleanup Method: NONE	Date Analyzed: 23-Jan-98	Dilution: 5
	Report Basis: AS RECEIVED	Prep Batch: v01119	LEACH DATE: 1/22/98

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-01-4	VINYL CHLORIDE	0.05	mg/l	0.05	U	
75-35-4	1,1-DICHLOROETHENE	0.025	mg/l	0.025	U	
78-93-3	2-BUTANONE	0.1	mg/l	0.1	U	
67-66-3	CHLOROFORM	0.025	mg/l	0.025	U	
56-23-5	CARBON TETRACHLORIDE	0.025	mg/l	0.025	U	
107-06-2	1,2-DICHLOROETHANE	0.025	mg/l	0.025	U	
71-43-2	BENZENE	0.025	mg/l	0.025	U	
79-01-6	TRICHLOROETHENE	0.025	mg/l	0.025	U	
127-18-4	TETRACHLOROETHENE	0.025	mg/l	0.025	U	
108-90-7	CHLOROBENZENE	0.025	mg/l	0.025	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	0.0482	mg/l	0.05	96	86 - 115
1868-53-7	DIBROMOFLUOROMETHANE	0.048	mg/l	0.05	96	86 - 118
2037-26-5	TOLUENE-D8	0.0544	mg/l	0.05	109	88 - 110

U = Less than the Reporting Limit

Volatile Organics by GC/MS

Method SW8260--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Wednesday, January 28, 1998

Field ID: LABQC
Lab ID: LRB1012298

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 22-Jan-98
Date Extracted: 23-Jan-98
Date Analyzed: 23-Jan-98
Prep Batch: v01119

Sample Aliquot: 5
Final Volume: 5
Dilution: 5
LEACH DATE: 1/22/98

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-01-4	VINYL CHLORIDE	0.05	mg/l	0.05	U	
75-35-4	1,1-DICHLOROETHENE	0.025	mg/l	0.025	U	
78-93-3	2-BUTANONE	0.1	mg/l	0.1	U	
67-66-3	CHLOROFORM	0.025	mg/l	0.025	U	
56-23-5	CARBON TETRACHLORIDE	0.025	mg/l	0.025	U	
107-06-2	1,2-DICHLOROETHANE	0.025	mg/l	0.025	U	
71-43-2	BENZENE	0.025	mg/l	0.025	U	
79-01-6	TRICHLOROETHENE	0.025	mg/l	0.025	U	
127-18-4	TETRACHLOROETHENE	0.025	mg/l	0.025	U	
108-90-7	CHLOROBENZENE	0.025	mg/l	0.025	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	0.0495	mg/l	0.05	99	86 - 115
1868-53-7	DIBROMOFLUOROMETHANE	0.0526	mg/l	0.05	105	86 - 118
2037-26-5	TOLUENE-D8	0.0526	mg/l	0.05	105	88 - 110

U = Less than the Reporting Limit

Volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8260

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID: None given

Reported on: Wednesday, January 28, 1998

BS ID: VB980123-1LCS
BSD ID: VB980123-1LCSD

Sample Matrix: liquid
 % Moisture: N/A
 Cleanup Method: NONE
 Report Basis: N/A

Date Collected: 22-Jan-98
 Date Extracted: 23-Jan-98
 Date Analyzed: 23-Jan-98
 Prep Batch: v01119

Sample Aliquot: 5
 Final Volume: 5
 Dilution: 1

CASNO	Target Analyte	Spike Added	BS Result	Units	Reporting Limit	BS % Rec.	Control Limits
75-01-4	VINYL CHLORIDE	0.02	0.0249	mg/l	0.01	125	49 - 132
75-35-4	1,1-DICHLOROETHENE	0.02	0.0213	mg/l	0.005	106	73 - 127
78-93-3	2-BUTANONE	0.02	0.0294	mg/l	0.02	147	26 - 156
67-66-3	CHLOROFORM	0.02	0.0198	mg/l	0.005	99	68 - 123
56-23-5	CARBON TETRACHLORIDE	0.02	0.0184	mg/l	0.005	92	80 - 113
107-06-2	1,2-DICHLOROETHANE	0.02	0.0226	mg/l	0.005	113	61 - 122
71-43-2	BENZENE	0.02	0.0184	mg/l	0.005	92	60 - 129
79-01-6	TRICHLOROETHENE	0.02	0.0183	mg/l	0.005	92	85 - 121
127-18-4	TETRACHLOROETHENE	0.02	0.015	mg/l	0.005	75	75 - 116
108-90-7	CHLOROBENZENE	0.02	0.0164	mg/l	0.005	82	85 - 119

CASNO	Target Analyte	Spike Added	BSD Result	Units	Reporting Limit	BSD % Rec.	RPD	RPD Limits
75-01-4	VINYL CHLORIDE	0.02	0.0226	mg/l	0.01	113	10	20
75-35-4	1,1-DICHLOROETHENE	0.02	0.0189	mg/l	0.005	94	12	20
78-93-3	2-BUTANONE	0.02	0.0227	mg/l	0.02	114	25	20
67-66-3	CHLOROFORM	0.02	0.019	mg/l	0.005	95	4	20
56-23-5	CARBON TETRACHLORIDE	0.02	0.0174	mg/l	0.005	87	6	20
107-06-2	1,2-DICHLOROETHANE	0.02	0.0224	mg/l	0.005	112	1	20
71-43-2	BENZENE	0.02	0.0188	mg/l	0.005	94	2	20
79-01-6	TRICHLOROETHENE	0.02	0.0184	mg/l	0.005	92	0	20
127-18-4	TETRACHLOROETHENE	0.02	0.0143	mg/l	0.005	71	5	20
108-90-7	CHLOROBENZENE	0.02	0.0155	mg/l	0.005	77	6	20

Surrogate Recovery BS/BSD

CASNO	Target Analyte	Spike Added	BS % Rec.	BSD % Rec.	RPD	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	0.05	107	100	7	86 - 115
1868-53-7	DIBROMOFLUOROMETHANE	0.05	108	100	8	86 - 118
2037-26-5	TOLUENE-D8	0.05	106	112	6	88 - 110

TCLP ZX

SET UP DATE: 1/22/98

WORKORDER #: 98-01-119, 152

TECHNICIAN: Kmp

EX980122-4

INITIALS	SAMPLE #	SAMPLE MATRIX	PERCENT SOLID DETERMINATION						ZHE ALIQUOT			TUMBLE			
			FREE LIQ. YIN	INT. SAM. WEIGHT	FILTER WEIGHT	BEAKER WEIGHT	DRY WT. OF SAMP.	% SOLID DRY/TOT	TUM. #	ALIQUOT (GRAMS)	FLUID (mL)	DATE	START TIME	DATE	END TIME
Kmp	MB	N/A	N/A						1	N/A	100	1/22/98	17:50	1/23/98	10:00
	119-02	Soil	N/A						2	5					
	152-01	Soil	N/A						4						

Kmp 1/22/98
PT-23-98

ATIFRM 608FC

COMMENTS:

980047



Paragon Analytics, Inc.

GC/MS Semivolatiles Case Narrative

Giant Refining Company

Order Number - 9801152

1. This report consists of 1 water sample received by Paragon on January 21, 1998
2. The sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the sample was tumbled by Method 1311. This TCLP leachate was then extracted using continuous liquid-liquid extractors, based on Method 3520.
3. The samples were analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270C. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. The samples were extracted and analyzed within the established holding times.
5. There were no target compounds detected in the method blank.
6. All laboratory control spike and laboratory control spike duplicate recoveries and RPDs were within the acceptance criteria.
7. The matrix spike was not analyzed due to the dilution at which the neat sample was analyzed. At this dilution all spiked compounds would have been diluted below the detection limit.
8. All surrogate recoveries were within acceptance criteria.



9. All internal standard recoveries were within acceptance criteria with the following exceptions:

Internal Standard	Sample	Direction
acenaphthene-10	LCS	low
phenanthrene-10	LCS	low
chrysene-12	LCS	low

The extract was reanalyzed with similar results. All QC criteria was within acceptance criteria, so no further action was required.

10. Due to high levels of tentatively identified compounds, the sample was analyzed at a higher dilution. The reporting limits have been adjusted accordingly.
11. All initial calibration criteria were met. Method 8270B states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Gary R. Brook
GC/MS Manager

2-2-98

Date

Reviewer's Initials

2-2-98

Date

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9801152

Client Name: Giant Refining Company

Client Project Name:

Client Project Number: None Given

Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SULFUR/SOIL	9801152-1		Soil	1/20/98	14:05
BACKGROUND/SOIL	9801152-2		Soil	1/20/98	14:30
SULFUR/SOIL	9801152-3		Leachate	1/20/98	

Semi-volatile Organics by GC/MS

Method SW8270--TCLP Leachate

Method Blank

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Monday, February 02, 1998

Field ID: LABQC
Lab ID: EX980127-4MB

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: NA

Date Collected: 22-Jan-98
Date Extracted: 22-Jan-98
Date Analyzed: 30-Jan-98
Prep Batch: EX980127-4

Sample Aliquot: 100
Final Volume: 1
Dilution: 1
LEACH DATE: 1/22/98

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
110-86-1	PYRIDINE	0.1	mg/l	0.1	U	
106-46-7	1,4-DICHLOROBENZENE	0.1	mg/l	0.1	U	
95-48-7	2-METHYLPHENOL	0.1	mg/l	0.1	U	
108-39-4	3+4-METHYLPHENOL	0.1	mg/l	0.1	U	
67-72-1	HEXACHLOROETHANE	0.1	mg/l	0.1	U	
98-95-3	NITROBENZENE	0.1	mg/l	0.1	U	
87-68-3	HEXACHLOROBUTADIENE	0.1	mg/l	0.1	U	
88-06-2	2,4,6-TRICHLOROPHENOL	0.1	mg/l	0.1	U	
95-95-4	2,4,5-TRICHLOROPHENOL	0.5	mg/l	0.5	U	
121-14-2	2,4-DINITROTOLUENE	0.1	mg/l	0.1	U	
118-74-1	HEXACHLOROBENZENE	0.1	mg/l	0.1	U	
87-86-5	PENTACHLOROPHENOL	0.5	mg/l	0.5	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0.682	mg/l	0.75	91	23 - 100
321-60-8	2-FLUOROBIPHENYL	0.35	mg/l	0.5	70	21 - 106
367-12-4	2-FLUOROPHENOL	0.54	mg/l	0.75	72	21 - 100
4165-60-0	NITROBENZENE-D5	0.346	mg/l	0.5	69	34 - 111
4165-62-2	PHENOL-D5	0.607	mg/l	0.75	81	15 - 104
1718-51-0	TERPHENYL-D14	0.404	mg/l	0.5	81	33 - 111

U = Less than the Reporting Limit

Semi-volatile Organics by GC/MS

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Monday, February 02, 1998

Field ID: SULFUR/SOIL

Lab ID: 9801152-3

Sample Matrix: liquid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: AS RECEIVED

Date Collected: 20-Jan-98

Date Extracted: 22-Jan-98

Date Analyzed: 30-Jan-98

Prep Batch: EX980127-4

Sample Aliquot: 100

Final Volume: 1

Dilution: 50

LEACH DATE: 1/22/98

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
110-86-1	PYRIDINE	5	mg/l	5	U	
106-46-7	1,4-DICHLOROENZENE	5	mg/l	5	U	
95-48-7	2-METHYLPHENOL	5	mg/l	5	U	
108-39-4	3+4-METHYLPHENOL	5	mg/l	5	U	
67-72-1	HEXACHLOROETHANE	5	mg/l	5	U	
98-95-3	NITROBENZENE	5	mg/l	5	U	
87-68-3	HEXACHLOROBUTADIENE	5	mg/l	5	U	
88-06-2	2,4,6-TRICHLOROPHENOL	5	mg/l	5	U	
95-95-4	2,4,5-TRICHLOROPHENOL	25	mg/l	25	U	
121-14-2	2,4-DINITROTOLUENE	5	mg/l	5	U	
118-74-1	HEXACHLOROENZENE	5	mg/l	5	U	
87-86-5	PENTACHLOROPHENOL	25	mg/l	25	U	

2mg/l ?
2mg/l ?
1.3mg/l ?
1.3mg/l ?

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0	mg/l	0.75	0	23 - 100
321-60-8	2-FLUOROBIPHENYL	0	mg/l	0.5	0	21 - 106
367-12-4	2-FLUOROPHENOL	0	mg/l	0.75	0	21 - 100
4165-60-0	NITROBENZENE-D5	0	mg/l	0.5	0	34 - 111
4165-62-2	PHENOL-D5	0	mg/l	0.75	0	15 - 104
1718-51-0	TERPHENYL-D14	0	mg/l	0.5	0	33 - 111

U = Less than the Reporting Limit

Semi-volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Monday, February 02, 1998

BS ID: EX980127-4LCS

BSD ID: EX980127-4LCSD

Sample Matrix: liquid

% Moisture: N/A

Cleanup Method: NONE

Report Basis: N/A

Date Collected: 22-Jan-98

Date Extracted: 22-Jan-98

Date Analyzed: 30-Jan-98

Prep Batch: EX980127-4

Sample Aliquot: 100

Final Volume: 1

Dilution: 1

LEACH DATE: 1/22/98

CASNO	Target Analyte	Spike Added	BS Result	Units	Reporting Limit	BS % Rec.	Control Limits
110-86-1	PYRIDINE	0.5	0.328	mg/l	0.1	66	1 - 83
106-46-7	1,4-DICHLOROBENZENE	0.5	0.3	mg/l	0.1	60	12 - 88
95-48-7	2-METHYLPHENOL	1	0.728	mg/l	0.1	73	21 - 97
108-39-4	3+4-Methylphenol	2	1.23	mg/l	0.1	62	29 - 92
67-72-1	HEXACHLOROETHANE	0.5	0.305	mg/l	0.1	61	18 - 83
98-95-3	NITROBENZENE	0.5	0.39	mg/l	0.1	78	14 - 105
87-68-3	HEXACHLOROBUTADIENE	0.5	0.262	mg/l	0.1	52	16 - 82
88-06-2	2,4,6-TRICHLOROPHENOL	1	0.578	mg/l	0.1	58	24 - 84
95-95-4	2,4,5-TRICHLOROPHENOL	1	0.63	mg/l	0.5	63	19 - 96
121-14-2	2,4-DINITROTOLUENE	0.5	0.298	mg/l	0.1	60	1 - 104
118-74-1	HEXACHLOROBENZENE	0.5	0.4	mg/l	0.1	80	22 - 101
87-86-5	PENTACHLOROPHENOL	1	0.569	mg/l	0.5	57	22 - 111

Semi-volatile Organics by GC/MS

Blank Spike and Blank Spike Duplicate

Method SW8270--TCLP Leachate

Lab Name: Paragon Analytics, Inc.

Work Order Number: 9801152

Client Name: Giant Refining Company

ClientProject ID:

Reported on: Monday, February 02, 1998

CASNO	Target Analyte	Spike Added	BSD Result	Units	Reporting Limit	BSD % Rec.	RPD	RPD Limits
110-86-1	PYRIDINE	0.5	0.289	mg/l	0.1	58	13	50
106-46-7	1,4-DICHLOROBENZENE	0.5	0.273	mg/l	0.1	55	9	50
95-48-7	2-METHYLPHENOL	1	0.621	mg/l	0.1	62	16	50
108-39-4	3+4-Methylphenol	2	1.07	mg/l	0.1	53	16	50
67-72-1	HEXACHLOROETHANE	0.5	0.272	mg/l	0.1	54	12	50
98-95-3	NITROBENZENE	0.5	0.337	mg/l	0.1	67	15	50
87-68-3	HEXACHLOROBUTADIENE	0.5	0.224	mg/l	0.1	45	14	50
88-06-2	2,4,6-TRICHLOROPHENOL	1	0.494	mg/l	0.1	49	17	50
95-95-4	2,4,5-TRICHLOROPHENOL	1	0.548	mg/l	0.5	55	14	50
121-14-2	2,4-DINITROTOLUENE	0.5	0.258	mg/l	0.1	52	14	50
118-74-1	HEXACHLOROBENZENE	0.5	0.354	mg/l	0.1	71	12	50
87-86-5	PENTACHLOROPHENOL	1	0.513	mg/l	0.5	51	11	50

Surrogate Recovery BS/BSD

CASNO	Target Analyte	Spike Added	BS % Rec.	BSD % Rec.	RPD	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	0.75	87	78	11	23 - 100
321-60-8	2-FLUOROBIPHENYL	0.5	70	59	17	21 - 106
367-12-4	2-FLUOROPHENOL	0.75	75	65	14	21 - 100
4165-60-0	NITROBENZENE-D5	0.5	82	70	16	34 - 111
4165-62-2	PHENOL-D5	0.75	86	73	16	15 - 104
1718-51-0	TERPHENYL-D14	0.5	86	73	16	33 - 111

EX980122-5

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) WORKSHEET

143791

WORKORDER #: 98-01-118, 119, 138, 149, 152 ANALYST: KM
 DATE: 1/22/98 DATE/TIME START: 1/22/98 17:30 RPM: 30
 DATE/TIME END: 1/23/98 9:45 RPM: 30

SAMPLE ID	INIT. pH	HCl	FINAL pH	FLUID #	SAMPLE WT. (gm)	FLUID (mL)	COMMENTS
<u>MB₁</u>	<u>N/A</u>			<u>1</u>	<u>N/A</u>	<u>2000</u>	
<u>118-01</u>	<u>9.38</u>	<u>3.5</u>	<u>1.61</u>	<u>1</u>	<u>100g</u>		
<u>119-01</u>	<u>6.79</u>		<u>1.61</u>	<u>1</u>			
<u>138-04</u>	<u>6.74</u>		<u>1.63</u>	<u>1</u>			
<u>149-04</u>	<u>6.81</u>		<u>1.65</u>	<u>1</u>			
<u>152-01</u>	<u>9.26</u>		<u>1.73</u>	<u>1</u>			

KM
1/23/98

BALANCE ID 2

SOP # _____

SL 1-23-98

JB 1-29-98

8270 TCLP SV 625
 WATER SOIL OTHER Leachate
 SURROGATE CODE A: 1283-69-03
 MATRIX SPIKE A: 1283-68-01

3550 SONI
 3540 SOX
 3520 GLE
 1/26/98

152000

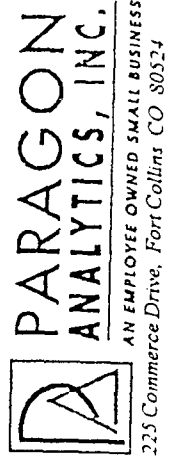
SET UP DATE/TIME: 1/27/98
 WORKORDER #s 98-01-152
 BATCH # EA980127-4 validated

INITIALS	SAMPLE	PREP			EXTRACTION				EXTRACT				COMMENTS		
		AMOUNT	INIT.	PH ADJUST	SURROGATE	MATRIX SPIKE	TIME	INIT KD	GPC	FINAL KD	FINAL	VIAL			
NUMBER			11-13	<2	A VOL	SPKRWIT	A VOL	SPKRWIT	OFF	DATE	DATE	DATE	DATE		
MB	100ml	5	12.8	1.3	1ml	King	eps	M/A	M/A	08:00	1/28/98	N/A	N/A	1ml	1/28/98
152-03															
MS					1ml	King	EA								
LCS1															
LCS2															

ATIFRM609FC

RECEIVED BY/DATE: GU 1-29-98

DCM Lot #:





Paragon Analytics, Inc.

METALS CASE NARRATIVE

Giant Refining Company

Order Number - 9801152

1. This report consists of 2 soil samples, one was analyzed for TCLP metals, the other for total metals.
 2. The samples were received cool and intact on 01/21/98.
 3. The samples had been correctly preserved for the requested analyses.
 4. The samples were prepared for analysis based on SW-846, 3rd Edition procedures.
One sample was processed through the TCLP leaching procedure based on method 1311. The leachate was then digested at a 10 fold dilution.
For analysis by Trace ICP, the leachate was digested following method 3010A.
For analysis by Cold Vapor AA (CVAA), the leachate was digested following method 7470A.
For total analysis by Trace ICP, the soil sample was digested following method 3050B.
 5. The leachate was analyzed following SW846 protocols by Trace ICP (Method 6010A) and CVAA (Method 7470A). The analysis of silver was done by Trace ICP.
The soil was analyzed following SW846 protocols by Trace ICP (Method 6010A).
 6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
 7. The samples were prepared and analyzed within the established hold times.
 8. Sample results which are below PAI's standard reporting limits are reported as "ND" on the enclosed report.
- All in house quality control procedures were followed, as described below.
9. General quality control procedures.
 - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in each digestion batch. There were not more than 20 samples in each digestion batch.



- The preparation (method) blank results associated with each batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedures.
 - The laboratory control samples associated with each batch were within acceptance limits. This indicates complete digestions according to the method.
 - All initial and continuing calibration blanks associated with each batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
 - All initial and continuing calibration verifications associated with each batch were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
 - The interference check samples, and high standard readbacks associated with Method 6010A analyses were within acceptance criteria.
10. A sample from another Order Number was used as the QC sample for each TCLP batch and the client's sample was used as the QC sample for the total batch.
- A matrix spike and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for accuracy were met with the following exception.

	<u>Analyte</u>	<u>Sample ID</u>
Soil:	Aluminum	9801152-2MS & MSD
	Iron	9801152-2MS & MSD
	Manganese	9801152-2MS & MSD

The concentration of aluminum, iron and manganese in the native sample was greater than 4 times the concentration of matrix spike added during the digestion. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The laboratory control sample results are included to show that the digestion and analysis were in control.

- A matrix duplicate and spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.
- A serial dilution was analyzed with each ICP batch. All acceptance criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below:

Darryl Patrick

Darryl Patrick
Senior Inorganic Chemist

2/2/98

Date

KH

Reviewer's Initials

2/2/98

Date

CERTIFICATION

Paragon Analyticals, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9801152

Client Name: Giant Refining Company

Client Project Name:

Client Project Number: None Given

Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SULFUR/SOIL	9801152-1		Soil	1/20/98	14:05
BACKGROUND/SOIL	9801152-2		Soil	1/20/98	14:30
SULFUR/SOIL	9801152-3		Leachate	1/20/98	

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9801152

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 01/22/98
Date Analyzed: 01/23/98

Analyte	Concentration mg/kg	Reporting Limit mg/kg
Aluminum	ND	20
Arsenic	ND	1
Barium	ND	10
Cadmium	ND	0.5
Chromium	ND	1
Iron	ND	10
Lead	ND	0.3
Magnesium	ND	100
Manganese	ND	1
Selenium	ND	0.5

ND = Not detected at or above the reporting limit.

DP

TOTAL METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9801152-2

Sample Matrix: Soil

Sample ID

BACKGROUND/SOIL

Date Collected: 01/20/98
Prep Date: 01/22/98
Date Analyzed: 01/23/98

Analyte	Concentration mg/kg	Reporting Limit mg/kg
Aluminum	6700	20
Arsenic	4	1
Barium	190	10
Cadmium	ND	0.5
Chromium	6	1
Iron	12000	10
Lead	6.9	0.3
Magnesium	3500	100
Manganese	240	1
Selenium	ND	0.5

ND = Not detected at or above the reporting limit.

DP

**TOTAL METALS
MATRIX SPIKE**

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9801152-2

Sample ID

BACKGROUND/SOIL

Sample Matrix: Soil

Prep Date: 01/22/98
Date Analyzed: 01/23/98

Analyte	Spike Added mg/kg	Sample Conc. mg/kg	MS Conc. mg/kg	% Rec (limits 80-120%)	Flags
Aluminum	200	6650	7890	620	See Note
Arsenic	200	4	219	108	
Barium	200	190	370	90	See Note
Cadmium	5.0	< 0.5	5.1	102	
Chromium	20	6	26	100	See Note
Iron	100	12000	12200	200	
Lead	50.0	6.9	56.6	99	See Note
Magnesium	4000	3500	7300	95	
Manganese	50	239	290	102	See Note
Selenium	200	< 0.5	209	105	

Analyte	MSD Conc. mg/kg	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Aluminum	7940	645	1	See Note
Arsenic	220	108	0	
Barium	370	90	0	See Note
Cadmium	5.1	102	0	
Chromium	26	100	0	See Note
Iron	12300	300	1	
Lead	57.0	100	1	See Note
Magnesium	7400	98	1	
Manganese	299	120	3	See Note
Selenium	210	105	0	

Sample results shown on spike page(s) may differ slightly from results on sample page(s). Where sample concentration is sufficiently high, three significant figures are used to determine spike recoveries and relative percent difference.

Note: Due to the large concentration of analyte in the sample, matrix spike recoveries may not be accurate. The Laboratory Control Sample (LCS) is included on a separate page to show that the digestion and analysis were in control.

DF

**TOTAL METALS
LABORATORY CONTROL SAMPLE**

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Order Number: 9801152

Date Analyzed: 01/23/98

Control limits: 80 - 120%

Analyte	LCS Result mg/kg	LCS True Value mg/kg	LCS % Recovery
Aluminum	180	200	90
Iron	100	100	100
Manganese	52	50	104

DP

TCLP METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9801152

Sample Matrix: TCLP Leachate

Sample ID

TCLP Blank

Date Collected: N/A
Prep Date: 01/23, 26/98
Date Analyzed: 01/23, 26/98

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	ND	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

BP

TCLP METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9801152-3

Sample Matrix: TCLP Leachate

Sample ID

SULFUR/SOIL

Date Collected: 01/20/98
Prep Date: 01/23, 26/98
Date Analyzed: 01/23, 26/98

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	ND	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

DP

TCLP METALS MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Lab Sample ID: 9801119-3

Sample ID

In House

Prep Date: 01/23/98
 Date Analyzed: 01/23/98

Sample Matrix: TCLP Leachate

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Arsenic	20.0	0.2	23.3	115	
Barium	20	5	25	102	
Cadmium	0.50	0.16	0.72	113	
Chromium	2.0	< 0.1	2.1	104	
Lead	5.00	0.03	5.46	108	
Selenium	20.0	< 0.05	22.4	112	
Silver	0.5	< 0.1	0.5	108	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Arsenic	23.8	118	2	
Barium	25	102	0	
Cadmium	0.73	115	2	
Chromium	2.1	105	2	
Lead	5.55	110	2	
Selenium	22.8	114	2	
Silver	0.5	109	1	

BP

**TCLP METALS
MATRIX SPIKE**

Lab Name: Paragon Analytics, Inc.
 Client Name: Giant Refining Company
 Lab Sample ID: 9801138-5

Sample ID
In House

Prep Date: 01/26/98
 Date Analyzed: 01/26/98

Sample Matrix: TCLP Leachate

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.020	< 0.002	0.020	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Mercury	0.020	100	0	

AP

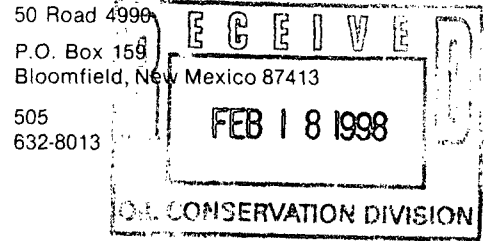
MEMORANDUM OF MEETING OR CONVERSATION

<input checked="" type="checkbox"/> Telephone	<input type="checkbox"/> Personal	Time 1:30 PM	Date 2-25-98
<u>Originating Party</u> MARK ASALEY		<u>Other Parties</u> LYNN SHELTON - GICANT	
<u>Subject</u> SOIL ANALYSIS FOR THE WATER/SULFUR SPILL. BACKGROUND SOIL SAMPLE FOR 11-9-97 DISPOSAL REQUEST.			
<u>Discussion</u> THE REPORTING LIMITS WERE LOWER THAN THE TELP REPORTING LIMITS BACKGROUND SOIL SAMPLE TAKEN FROM EXTREME SE CORNER OF REFFERY PROPERTY, ALSO UPSTREAM FROM REFFERY.			
<u>Conclusions or Agreements</u> CURRENT TESTING IS NOT ACCEPTABLE FOR THE WATER/SULFUR CHARACTERIZATION.			
<u>Distribution</u>		Signed Mark Asaley	



February 12, 1998

Mr. Roger Anderson
Environmental Bureau chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505



Re: Analytical Data C-141 Written Follow-up & Background Soil Data
Giant Refining Company - Bloomfield GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits analytical data, including all QA/QC, for the water/sulfur spill that was reported to the OCD on January 19 and January 30, 1998.

The water/sulfur sample was analyzed for TCLP constituents (less herbicides and pesticides). Results were non-detect for all analytes. Giant proposes to return the water/sulfur/soil that is being stored in a temporary lined berm to the regular sulfur storage area.

Additionally, a background soil sample was analyzed for heavy metals. Results of that analysis and the QA/QC is included for your review. This sample was taken at your request after Giant proposed a one time beneficial use for soils that are being stored on site. Hopefully, this provides sufficient documentation to satisfy OCD requirements and an approval to use the soil in a beneficial manner will be granted.

If you have any questions, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: Denny Foust, NMOCD - Aztec

cc w/o enclosure: John Stokes, Refinery Manager
Kathleen O'Leary, Corporate Counsel



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

February 25, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-259-037

Mr. Lynn Shelton
Environmental Manager
Giant Refining Co.
P.O. Box 159
Bloomfield, NM 87413

**RE: Disposal of Soils on Site
Bloomfield Refinery (GW-001
San Juan County, New Mexico**

Dear Mr. Shelton:

The New Mexico Oil Conservation Division (OCD) has completed a review of the Giant Refining Co. (Giant) request dated November 4, 1997 and the follow-up background soil analysis dated February 12, 1998 for disposal of soils on site. The request consists of the following:

1. Using the EPA delisted soils as fill in a low lying area near the refinery's naptha loading racked.
2. Using the river terrace and evaporation soils as fill in the south unlined evaporation lagoon.

Based on the information provided, Giant's request is approved with the following conditions:

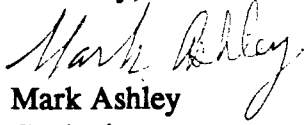
1. All soils will be overlain with clean fill soil to act as a cap to minimize potential migration of remaining contaminants.
2. The use of the above mentioned soils will be a one time application.
3. **BJ** will notify the OCD Aztec District Office at least 72 hours prior to all activities.

Please be advised that OCD approval does not relieve Giant of responsibility for compliance with any other federal, state or local laws and/or regulations.

Mr. Lynn Shelton
February 26, 1998
Page 2

If you have any questions, please call me at (505) 827-7155.

Sincerely,

A handwritten signature in cursive script that reads "Mark Ashley".

Mark Ashley
Geologist

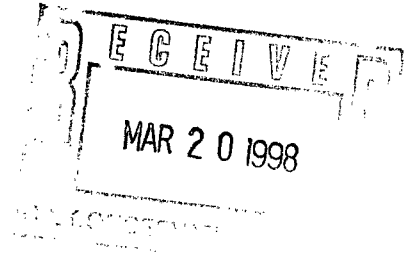
xc: OCD Aztec Office



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

March 18, 1998

Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505



Re: Groundwater Sampling Giant Refining Company - Bloomfield GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the analytical results from the last groundwater sampling event, as required by this facility's discharge plan.

A copy of the analytical data for the RCRA wells is included for your information.

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

A handwritten signature in cursive script, appearing to read "Lynn Shelton". The signature is written in dark ink and is positioned above the typed name.

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

**GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - GW-1A**

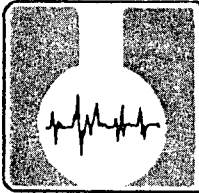
Well #MMW-1

PARAMETER	UNIT	PQL	NMWO STANDARD	CURRENT RESULT	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				11/17/97	5/23/97	11/20/96	5/31/96	12/7/95	5/22/95	1984/1985			
Arsenic	mg/l	0.01	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.016
Barium	mg/l	0.02	1	0.01	0.02	ND	0.01	ND	ND	ND	ND	ND	0.25
Cadmium	mg/l	0.001	0.01	ND	ND	ND	0.007	0.003	0.002	0.002	0.002	0.01	0.01
Chromium	mg/l	0.02	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.018
Lead	mg/l	0.005	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.086
Boron	mg/l	0.1	0.75	0.2	0.2	ND	0.34	0.71	0.40	0.40	0.40	0.268	0.268
Iron	mg/l	0.03	1	ND	ND	2.1	0.2	0.19	1.00	1.00	1.00	46.268	46.268
Manganese	mg/l	0.02	0.2	0.783	0.665	0.505	0.17	9.22	7.20	7.20	7.20	0.943	0.943
Total Dissolved Solids	mg/l	10	1000	1230	1590	882	2390	4400	4850	4850	4850	3516	3516
Chloride	mg/l	5	250	110	260	152	728	1300	1730	1730	1730	1070.5	1070.5
Sulfate	mg/l	10	600	502	511	246	531	960	899	899	899	815.5	815.5
Phenols	mg/l	0.05	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.055
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate, Nitrite as N	mg/l	0.05	10	8.7	17.3	?	7.6	15.00	3.00	3.00	3.00	5.725	5.725
Ammonia	mg/l	0.07		1.1	0.6	1	0.6	3.9	4.8	4.8	4.8		
Total Kjeldahl Nitrogen	mg/l	0.5		1.6	1.8	1.8	7.6	10	10	10	10		
Benzene	ug/l	0.5	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND	0.3	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND	0.4	ND	ND	ND	ND	ND	ND
pH	s.u.	0.01		7.4	7.62	7.6	7.3	7.16	7.00	7.00	7.00	7.31	7.31
Elevation at T.O.P.	ft	0.01		5515.78	5515.78	5515.78	5515.78	5515.78	5515.78	5515.78	5515.78	5515.78	5515.78
Depth to Water	ft	0.01		17.6	16.7	17.74	10.7	17.65	15.64	15.64	15.64	16.19	16.19
Elevation at T.O.W.	ft	0.01		5498.18	5499.08	5498.04	5505.08	5498.13	5500.14	5500.14	5500.14	5499.59	5499.59

**GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - GW-1A**

Well #MMW-5

PARAMETER	UNIT	PQL	NMWA STANDARD	CURRENT RESULT	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				11/17/97	5/23/97	11/20/96	5/31/96	12/7/95	5/22/95	1984/1985		
Arsenic	mg/l	0.01	0.1	ND	ND	ND	ND	ND	ND	ND	0.004	
Barium	mg/l	0.02	1	0.02	0.02	0.03	0.03	ND	ND	ND	ND	
Cadmium	mg/l	0.001	0.01	ND	ND	ND	ND	ND	ND	ND	0.015	
Chromium	mg/l	0.02	0.05	ND	ND	0.04	ND	ND	ND	ND	ND	
Lead	mg/l	0.005	0.05	ND	ND	ND	0.72	ND	ND	ND	0.015	
Boron	mg/l	0.1	0.75	0.5	0.5	0.6	0.54	0.81	0.50	0.50	0.48	
Iron	mg/l	0.03	1	ND	0.2	6.2	0.72	0.08	0.08	ND	0.061	
Manganese	mg/l	0.02	0.2	0.302	0.155	0.187	0.58	0.24	0.10	0.10	0.128	
Total Dissolved Solids	mg/l	10	1000	6240	6250	5660	6350	7500	7720	4746		
Chloride	mg/l	5	250	2530	2690	2810	2260	2600	2600	3180	1402	
Sulfate	mg/l	10	600	1902	879	912	918	780	780	943	1299	
Phenols	mg/l	0.05	0.005	ND	ND	ND	ND	0.37	ND	ND	0.008	
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND	ND	ND	ND	0.013	
Nitrate, Nitrite as N	mg/l	0.05	10	12.2	13.5	?	14.5	16.00	19.30	19.30	24	
Ammonia	mg/l	0.07		0.3	0.4	ND	0.6	ND	0.2	0.2		
Total Kjeldahl Nitrogen	mg/l	0.5		2.2	3.4	1	3.5	5	1.2			
Benzene	ug/l	0.5	10	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND	ND	ND	
Xylenes (total)	ug/l	0.5	620	ND	ND	ND	ND	ND	ND	ND	ND	
pH	s.u.	0.01		6.64	7.07	7.1	7	7.16	7.00	7.41		
Elevation at T.O.P.	ft	0.01		5545.13	5545.13	5545.13	5545.13	5545.13	5545.13	5545.13		
Depth to Water	ft	0.01		44.2	46.42	45.56	4.5*	44.45	43.98	41.85		
Elevation at T.O.W.	ft	0.01		5500.93	5498.71	5499.57	5540.63*	5500.68	5501.28	5503.28		



**ASSAIGAI
ANALYTICAL
LABORATORIES, INC.**

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259

3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

GIANT REFINING-BLOOMFIELD
attn: LYNN SHELTON
PO BOX 159
BLOOMFIELD NM 87413

* explanation of codes	
B	Analyte detected in Method Blank
E	Result is estimated
M	See explanatory memo

Assaigai Analytical Laboratories, Inc.

Certificate of Analysis

Client: **GIANT REFINING-BLOOMFIELD**
Project: **9711127 MONITOR WELLS**

William P. Biava
William P. Biava: President of Assaigai Analytical Laboratories, Inc.

Client Sample ID	MONITOR WELL FB-05		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				8010-20				
11/17/97	9711127-01A	X97400	Benzene	< 1.0	ug / L	1	XG.1997.315 - 4	11/21/97
		X97400	Ethylbenzene	< 1.0	ug / L	1	XG.1997.315 - 4	
		X97400	O-Xylene	< 1.0	ug / L	1	XG.1997.315 - 4	
		X97400	P/M-Xylenes	< 2.0	ug / L	2	XG.1997.315 - 4	
		X97400	Toluene	< 1.0	ug / L	1	XG.1997.315 - 4	

Client Sample ID	MONITOR WELL-05		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				8010-20				
11/17/97	9711127-02A	X97400	Benzene	< 1.0	ug / L	1	XG.1997.315 - 5	11/21/97
		X97400	Ethylbenzene	< 1.0	ug / L	1	XG.1997.315 - 5	
		X97400	O-Xylene	< 1.0	ug / L	1	XG.1997.315 - 5	
		X97400	P/M-Xylenes	< 2.0	ug / L	2	XG.1997.315 - 5	
		X97400	Toluene	< 1.0	ug / L	1	XG.1997.315 - 5	
				EPA-200 series AA-GF				
11/17/97	9711127-02B	M97858	Cadmium	< 0.0010	mg / L	0.001	MW.1997.962 - 25	12/05/97
		M97858	Lead	< 0.002	mg / L	0.002	MW.1997.946 - 14	12/01/97
				EPA-200.7 ICP				
11/17/97	9711127-02B	M97853	Barium	0.02	mg / L	0.01	MW.1997.963 - 19	12/04/97
		M97853	Boron	0.5	mg / L	0.1	MW.1997.963 - 19	
		M97853	Chromium	< 0.04	mg / L	0.04	MW.1997.963 - 19	
		M97853	Iron	< 0.2	mg / L	0.2	MW.1997.963 - 19	
		M97853	Manganese	0.302	mg / L	0.01	MW.1997.963 - 19	
				SW846-7000 series AA-GF				
11/17/97	9711127-02B	M97857	Arsenic	< 0.005	mg / L	0.005	MW.1997.947 - 17	12/02/97



Assaigai Analytical Laboratories, Inc.
Certificate of Analysis

Client: **GIANT REFINING-BLOOMFIELD**
Project: **9711127 MONITOR WELLS**

Sample ID	QC Group	Analyte	Result	Units	Limit	Run Group - #	Run Date	
11/17/97 9711127-02C	WTDS-430	EPA-160 series						
		Total Dissolved Solids	6240	mg / L	10	MT.1997.328 - 5	11/21/97	
11/17/97 9711127-02C	W97531 W97530	EPA-300 series						
		Chloride	2530	mg / L	0.5	MW.1997.1068 - 7	12/03/97	
		Sulfate	902	mg / L	0.5	MW.1997.939 - 10	11/26/97	
11/17/97 9711127-02D	W97520	EPA-300 series						
		Nitrate, Nitrogen	12.2	mg N / L	0.2	MW.1997.909 - 26	11/19/97	
11/17/97 9711127-02D	W97521 W97522	SM-4500						
		Ammonia	0.3	mg / L	0.2	MW.1997.908 - 11	11/20/97	
		Kjeldahl Nitrogen, Total	2.2	mg / L	0.2	MW.1997.910 - 14		
11/17/97 9711127-02E	W97523	EPA-335 / SM-4500						
		Cyanide	< 0.02	mg / L	0.02	MW.1997.916 - 10	11/20/97	
11/17/97 9711127-02F	W97533	SM-9065 / EPA-420.1						
		Phenol	< 0.05	mg / L	0.05	MW.1997.952 - 8	12/03/97	

Client: **MONITOR WELL-01** Sample Matrix: **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	* Run Group - #	Run Date	
11/17/97 9711127-03A		X97417	SW846-8020 Volatiles						
			Benzene	< 1.0	ug / L	1	XG.1997.324 - 6	11/26/97	
			Ethylbenzene	< 1.0	ug / L	1	XG.1997.324 - 6		
			o-Xylene	< 1.0	ug / L	1	XG.1997.324 - 6		
			p/m Xylenes	< 2.0	ug / L	2	XG.1997.324 - 6		
			Toluene	< 1.0	ug / L	1	XG.1997.324 - 6		
11/17/97 9711127-03B		M97858	EPA-200 series AA-GF						
			Cadmium	< 0.0010	mg / L	0.001	MW.1997.962 - 26	12/05/97	
		M97858	Lead	< 0.002	mg / L	0.002	MW.1997.946 - 15	12/01/97	
11/17/97 9711127-03B		M97853	EPA-200.7 ICP						
			Barium	0.01	mg / L	0.01	MW.1997.963 - 20	12/04/97	
			Boron	0.2	mg / L	0.1	MW.1997.963 - 20		
			Chromium	< 0.04	mg / L	0.04	MW.1997.963 - 20		
			Iron	< 0.2	mg / L	0.2	MW.1997.963 - 20		
		M97853	Manganese	0.781	mg / L	0.01	MW.1997.963 - 20		
11/17/97 9711127-03B		M97857	SW846-7000 series AA-GF						
			Arsenic	< 0.005	mg / L	0.005	MW.1997.947 - 18	12/02/97	
11/17/97 9711127-03C	WTDS-430		EPA-160 series						
			Total Dissolved Solids	1230	mg / L	10	MT.1997.328 - 6	11/21/97	
11/17/97 9711127-03C	W97530	W97530	EPA-300 series						
			Chloride	110	mg / L	0.5	MW.1997.939 - 11	11/26/97	
			Sulfate	502	mg / L	0.5	MW.1997.939 - 11		
11/17/97 9711127-03D	W97520		EPA-300 series						
			Nitrate, Nitrogen	8.7	mg N / L	0.2	MW.1997.909 - 24	11/19/97	
11/17/97 9711127-03D	W97521 W97522		SM-4500						
			Ammonia	1.1	mg / L	0.2	MW.1997.908 - 13	11/20/97	
			Kjeldahl Nitrogen, Total	1.6	mg / L	0.2	MW.1997.910 - 15		
11/17/97 9711127-03E	W97523		EPA-335 / SM-4500						
			Cyanide	< 0.02	mg / L	0.02	MW.1997.916 - 7	11/20/97	
11/17/97 9711127-03F	W97533		SM-9065 / EPA-420.1						
			Phenol	< 0.05	mg / L	0.05	MW.1997.952 - 9	12/03/97	

Assagai Analytical Laboratories, Inc.
Certificate of Analysis

Client: GIANT REFINING-BLOOMFIELD
Project: 9711127 MONITOR WELLS

Client Sample ID	MONITOR WELL-21		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				8010-20				
11/17/97	9711127-04A	X97407	Benzene	700	ug / L	1	XG.1997.316 - 4	11/25/97
		X97407	Ethylbenzene	170	ug / L	1	XG.1997.316 - 4	
		X97407	O-Xylene	< 10	ug / L	1	XG.1997.316 - 4	
		X97407	P/M-Xylenes	470	ug / L	2	XG.1997.316 - 4	
		X97407	Toluene	< 10	ug / L	1	XG.1997.316 - 4	
			SUBCONTRACT					
11/17/97	9711127-04B	ATEL-11127	Total Organic Carbon	26	mg/l		MT.1997.447 - 1	12/07/97
			SUBCONTRACT					
11/17/97	9711127-04C	ATEL-11127	Total Organic Halides	240	ug/l		MT.1997.447 - 2	11/26/97

Client Sample ID	RW-15		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				8010-20				
11/17/97	9711127-05A	X97407	Benzene	17000	ug / L	1	XG.1997.316 - 7	11/25/97
		X97407	Ethylbenzene	3400	ug / L	1	XG.1997.316 - 7	
		X97407	O-Xylene	4700	ug / L	1	XG.1997.316 - 7	
		X97407	P/M-Xylenes	14000	ug / L	2	XG.1997.316 - 7	
		X97407	Toluene	20000	ug / L	1	XG.1997.316 - 7	
			SUBCONTRACT					
11/17/97	9711127-05B	ATEL-11127	Total Organic Carbon	49	mg/l		MT.1997.447 - 9	12/07/97
			SUBCONTRACT					
11/17/97	9711127-05C	ATEL-11127	Total Organic Halides	78	ug/l		MT.1997.447 - 10	11/26/97

Client Sample ID	MONITOR WELL FB-20		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				8010-20				
11/18/97	9711127-06A	X97407	Benzene	< 1.0	ug / L	1	XG.1997.316 - 6	11/25/97
		X97407	Ethylbenzene	< 1.0	ug / L	1	XG.1997.316 - 6	
		X97407	O-Xylene	< 1.0	ug / L	1	XG.1997.316 - 6	
		X97407	P/M-Xylenes	< 2.0	ug / L	2	XG.1997.316 - 6	
		X97407	Toluene	< 1.0	ug / L	1	XG.1997.316 - 6	

Client Sample ID	MONITOR WELL-20		Sample Matrix	WATER				
Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
				SW846-8020 Volatiles				
11/18/97	9711127-07A	X97417	Benzene	160	ug / L	1	XG.1997.324 - 7	11/26/97
		X97417	Ethylbenzene	51	ug / L	1	XG.1997.324 - 7	
		X97417	o-Xylene	69	ug / L	1	XG.1997.324 - 7	
		X97417	p/m Xylenes	200	ug / L	2	XG.1997.324 - 7	
		X97417	Toluene	310	ug / L	1	XG.1997.324 - 7	
			SUBCONTRACT					
11/18/97	9711127-07B	ATEL-11127	Total Organic Carbon	36	mg/l		MT.1997.447 - 4	12/07/97

Assaigai Analytical Laboratories, Inc.
Certificate of Analysis

Client: **GIANT REFINING-BLOOMFIELD**
Project: **9711127 MONITOR WELLS**

SUBCONTRACT	
11/18/97 9711127-07C ATEL-11127	Total Organic Halides < 5.0 ug/l MT.1997.447 - 3 12/02/97

Client Sample ID: **MONITOR WELL-FB-09** Sample Matrix: **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
SW846-8020 Volatiles								
11/18/97	9711127-08A	X97423	Benzene	< 1.0	ug / L	1	XG.1997.325 - 6	12/01/97
		X97423	Ethylbenzene	< 1.0	ug / L	1	XG.1997.325 - 6	
		X97423	o-Xylene	< 1.0	ug / L	1	XG.1997.325 - 6	
		X97423	p/m Xylenes	< 2.0	ug / L	2	XG.1997.325 - 6	
		X97423	Toluene	< 1.0	ug / L	1	XG.1997.325 - 6	

Client Sample ID: **MONITOR WELL-09** Sample Matrix: **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
SW846-8020 Volatiles								
11/18/97	9711127-09A	X97417	Benzene	17000	ug / L	1	XG.1997.324 - 8	11/26/97
		X97417	Ethylbenzene	830	ug / L	1	XG.1997.324 - 8	
		X97417	o-Xylene	370	ug / L	1	XG.1997.324 - 8	
		X97417	p/m Xylenes	5700	ug / L	2	XG.1997.324 - 8	
		X97417	Toluene	760	ug / L	1	XG.1997.324 - 8	
SUBCONTRACT								
11/18/97	9711127-09B	ATEL-11127	Total Organic Carbon	71	mg/l		MT.1997.447 - 5	12/07/97
SUBCONTRACT								
11/18/97	9711127-09C	ATEL-11127	Total Organic Halides	< 5.0	ug/l		MT.1997.447 - 6	12/02/97
EPA-300 series								
11/18/97	9711127-09E	W97520	Nitrate, Nitrogen	< 0.2	mg N/ L	0.2	MW.1997.909 - 29	11/19/97
SM-4500								
11/18/97	9711127-09E	W97521	Ammonia	< 1.0	mg / L	0.2	MW.1997.908 - 14	11/20/97
		W97522	Kjeldahl Nitrogen, Total	4.8	mg / L	0.2	MW.1997.910 - 16	

Client Sample ID: **RW-18** Sample Matrix: **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
8010-20								
11/18/97	9711127-10A	X97407	Benzene	4700	ug / L	1	XG.1997.316 - 5	11/25/97
		X97407	Ethylbenzene	1200	ug / L	1	XG.1997.316 - 5	
		X97407	O-Xylene	< 100	ug / L	1	XG.1997.316 - 5	
		X97407	P/M-Xylenes	380	ug / L	2	XG.1997.316 - 5	
		X97407	Toluene	140	ug / L	1	XG.1997.316 - 5	
SUBCONTRACT								
11/18/97	9711127-10B	ATEL-11127	Total Organic Carbon	50	mg/l		MT.1997.447 - 8	12/07/97
SUBCONTRACT								
11/18/97	9711127-10C	ATEL-11127	Total Organic Halides	180	ug/l		MT.1997.447 - 7	12/02/97

Client Sample ID: **TRIP BLANK** Sample Matrix: **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit *	Run Group - #	Run Date
8010-20								
11/18/97	9711127-11A	X97407	Benzene	< 1.0	ug / L	1	XG.1997.316 - 9	11/26/97



Assagai Analytical Laboratories, Inc.



Certificate of Analysis

Client: GIANT REFINING-BLOOMFIELD

Project: 9711127 MONITOR WELLS

11/18/97	9711127-11A	X97407	Ethylbenzene	< 1.0	ug / L	1	XG.1997.316 - 9	11/26/97
		X97407	O-Xylene	< 1.0	ug / L	1	XG.1997.316 - 9	
		X97407	P/M-Xylenes	< 2.0	ug / L	2	XG.1997.316 - 9	
		X97407	Toluene	< 1.0	ug / L	1	XG.1997.316 - 9	

GIANT REFINING COMPANY - BLOOMFIELD						
GROUNDWATER MONITORING - RCRA PART B PERMIT						
PARAMETER	UNIT	UP GRADIENT		DOWN GRADIENT		
		MW-21	RW-15	MW-20	MW-9	RW-18
Date of Sample		11/17/97	11/17/97	11/18/97	11/18/97	11/18/97
HYDROCARBON INDICATORS						
Benzene	mg/l	0.7	17	0.16	17	4.7
Ethylbenzene	mg/l	0.17	3.4	0.051	0.83	1.2
Toluene	mg/l	ND	20	0.31	0.76	0.14
Xylenes (total)	mg/l	0.47	14	0.2	6.07	380
pH	s.u.	6.99	7.13	6.81	7.04	6.88
pH	s.u.	6.99	7.13	6.82	7.03	6.89
pH	s.u.	6.99	7.13	6.81	7.02	6.89
pH	s.u.	6.99	7.13	6.84	7.01	6.88
Specific Conductance	us/cm	765	555	322	216	280
Specific Conductance	us/cm	747	556	320	218	260
Specific Conductance	us/cm	744	545	318	257	257
Specific Conductance	us/cm	749	554	324	269	269
Total Organic Carbon	mg/l	26.0	49.0	36.0	71.0	50
Total Organic Halogen	mg/l	0.24	0.078	<0.005	<0.005	0.18
GROUNDWATER LEVELS						
Elevation - TOP	feet	5518.62	5533.44	5516.46	5519.77	5526.08
Depth to Water	feet	20.0	33.6	18.3	21.8	27
Elevation - GW	feet	5498.62	5499.84	5498.16	5497.97	5499.08
HC Thickness	feet	0	0	0	0	0
Elevation - Liquid	feet	5498.62	5499.84	5498.16	5497.97	5499.08
Total Depth from TOP	feet	30.44	43.6	27.12	34.94	39.7

WELL PUMPING & SAMPLING LOG

WELL #	MW-1	MW-5	MW-21	RW-15	MW-20	MW-9	RW-18
PURGE DATE	11-17-97	11-17-97	11-17-97	11-17-97	11-18-97	11-18-97	11-18-97
PURGE TIME	11:55	* 09:15	13:05	14:10	08:55	10:15	* 11:40
TOP OF LIQUID	17' 6"	44' 2"	20' 0"	33' 6"	18' 3"	21' 8"	27' 0"
TOP OF WATER	17' 6"	44' 2"	20' 0"	33' 6"	18' 3"	21' 8"	27' 0"
PUMP DEPTH	21' 6"	46' 4"	30' 4"	43' 6"	27' 1"	34' 0"	39' 7"
IMMISC. LAYER	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FLOW RATE	0.55 GPM	N/A	0.62 GPM	0.5 GPM	0.66 GPM	0.92 GPM	N/A
PUMP TIME	10 min	N/A	25 min	30 min	20 min	20 min	N/A
PUMP METHOD	Purge P. Bailer	Purge P.	Purge P.	Purge P.	Purge P.	Purge P.	Bailer
SAMPLE TIME	12:15	11:10	13:40	14:40	09:20	10:45	12:45
LIQUID DEPTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1) pH	7.39	6.63	6.99	7.13	6.81	7.04	6.88
SP. COND.	287	1425	765	555	322	216	280
2) pH	7.40	6.64	6.99	7.13	6.82	7.03	6.89
SP. COND.	289	1423	747	556	320	218	260
3) pH	7.40	6.64	6.99	7.13	6.81	7.02	6.89
SP. COND.	284	1420	744	545	318	219	257
4) pH	7.40	6.65	6.99	7.13	6.84	7.01	6.88
SP. COND.	284	1417	749	554	324	216	269

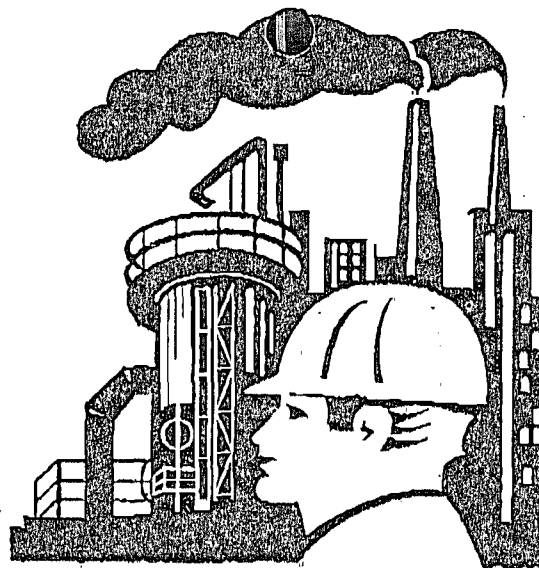
SAMPLER'S SIGNATURE _____

COMMENTS * Hand Bailed



BLOOMFIELD REFINERY
#50 COUNTY ROAD 4990
P. O. BOX 159
BLOOMFIELD, NM 87413

PHONE - (505) 632-8013
FAX - (505) 632-3911



DATE: 3/3/98

TO: MARK ASHLEY

COMPANY: NMOC

FAX NUMBER: (505) 827 8177

FROM: LYNN SHELTON

PAGE 1 of 2

MESSAGE: HERE IS THE EXPLANATION FOR THE
HIGHER REPORTING LIMITS. I'LL CALL YOU
TO DISCUSS. Lynn

WATER/SHELVK SPILL



9. All internal standard recoveries were within acceptance criteria with the following exceptions:

Internal Standard	Sample	Direction
acenaphthene-10	LCS	low
phenanthrene-10	LCS	low
chrysene-12	LCS	low

The extract was reanalyzed with similar results. All QC criteria was within acceptance criteria, so no further action was required.

10. Due to high levels of non-target compounds, the sample was analyzed at a higher dilution. The reporting limits have been adjusted accordingly. The sample could not be analyzed at a dilution that would meet all TCLP regulatory limits without causing instrument failure. Cleanup methods such as GPC affect heavy non-chromatographic compounds. GPC cleanup would not have an effect on the non-target compounds detected in this extract.

11. All initial calibration criteria were met. Method 8270B states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytical, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

G. Brook

Gary R. Brook
GC/MS Manager

2-27-98

Date

ZR

Reviewer's Initials

2-27-98

Date

NOT ACCEPTABLE.
NEED TO RESAMPLE.
CONVERSATION
w/ LAW SHELTON
on 3-6-98
HAM

PARAGON ANALYTICS, INC.



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

March 18, 1998

Mr. Warren Arthur (6EN-HX)
USEPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Monthly Progress Report
EPA ID No. NMD 089416416

Administrative Order on Consent
U.S. EPA Docket No. VI-303-H

Dear Mr. Arthur:

In accordance with VI.5.b. of the Order, Giant Refining Company - Bloomfield (GRC) submits this monthly progress report.

Interim Measures (IM) Progress

1. Interim Measures, including product recovery from onsite recovery wells, continues. The product recovery wells have been shut in and the pumps removed for maintenance. Additional groundwater measurements will be taken between now and April 15, 1998.

Corrective Measures Study (CMS)

1. GRC is still waiting for the submission of the groundwater model for this facility. Additional groundwater measurements have been taken and one more round of measurements will be taken to document fluctuations in elevation due to seasonal changes.

A remediation plan was submitted for the remediation of the river bank area. OCD has approved the plan with conditions. Giant plans to start the bidding process, for implementation of the plan, this month.

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

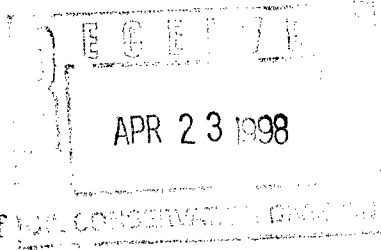
TLS/tls

cc: John Stokes, Refinery Manager
~~Roger Anderson~~ NMOCD
Benito Garcia, NMED

February Report

April 20, 1998

Mr. Roger Anderson
Environmental Bureau Chief
NMOCD
2040 South Pacheco
Santa Fe, New Mexico 87505



50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

Re: Permit Modifications GW-001
Giant Refining Company - Bloomfield, San Juan County

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits TCLP data for the sulfur/soil pile that is currently being stored within a plastic lined berm. The first TCLP that was received contained flawed data due to laboratory problems. Giant wishes to place that soil with the other sulfur that is being stored east of the refinery (see drawing).

Additionally, Giant wishes to list the concrete heat exchanger bundle pad that is situated east of the <90 storage building in our current permit. This concrete pad is used to clean (hydroblast) heat exchanger bundles during shutdowns. It is occasionally used to store soils that are contaminated while awaiting receipt of analytical data.

Giant is supplying a facility drawing to show the locations of the mentioned items.

Finally, Giant wishes to use 120+ gallons per day (during the warm months) of refinery wastewater to irrigate grass and plants around the new office building. Ample data has been supplied to your office documenting the non-hazardous nature of that water. This will be a beneficial use of that water as it is less water that would, otherwise, be pumped into the injection well.

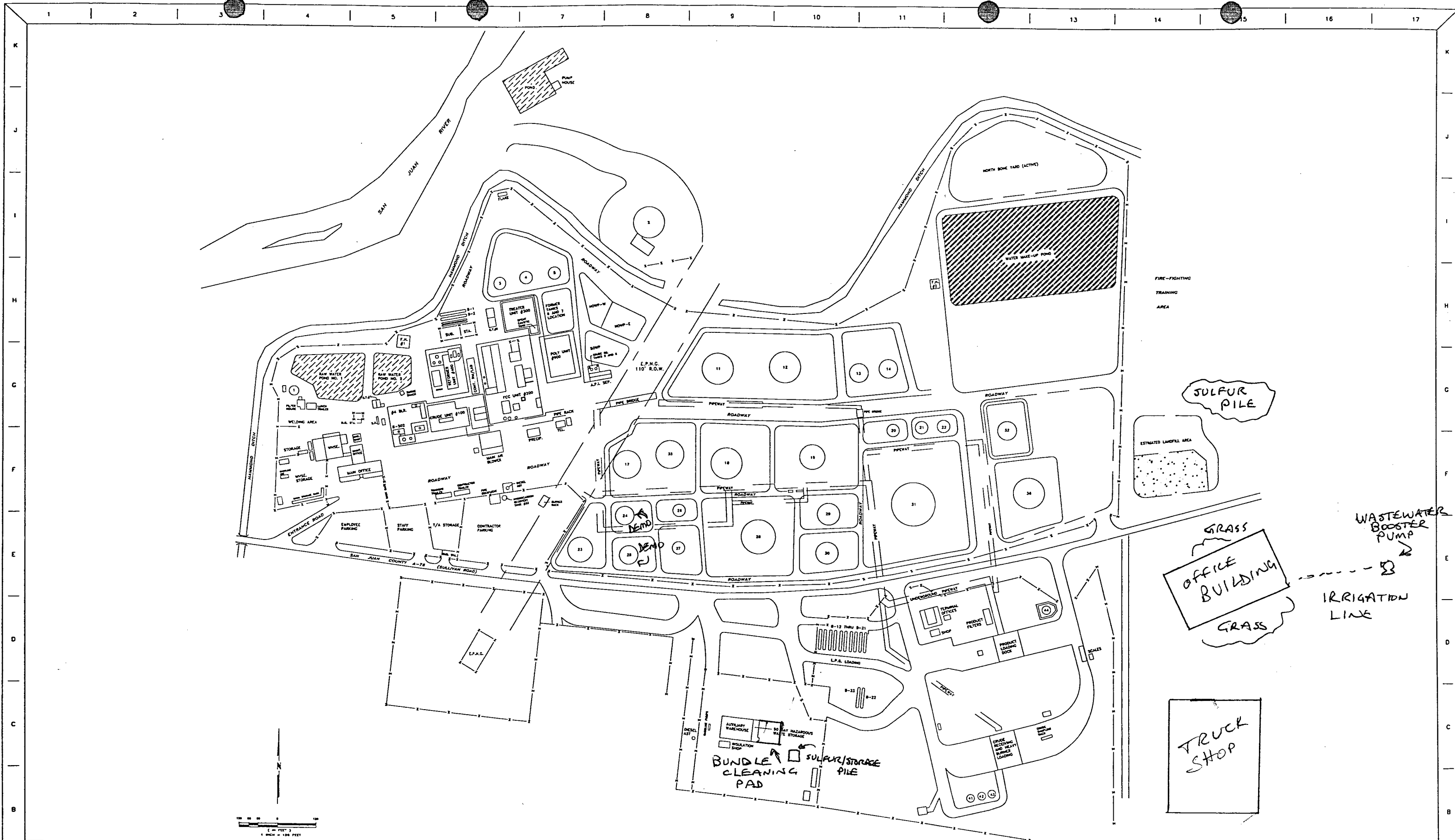
If you need information, please call me at 1 (505) 632 8013.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company

TLS/tls

Enclosure



NOTES

REFERENCE DWGS.	NO.	REVISION	BY	DATE	BY	DATE	BY	DATE

SCALE	AS NOTED	DATE
DRAWN BY		
INITIAL CHK.		
FINAL CHK.		
ENGR.		
APPR. BY		
AFE/NO No.		

PLOT PLAN
BLOOMFIELD REFINERY

GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO
DWG. NO. REV. **0**

TRACE ANALYSIS, INC. ANALYTICAL REPORT

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424 800-378-1298
El Paso, Texas 79922 888-588-3443
E-Mail: lab@traceanalysis.com

806-794-1296 FAX 806-794-1298
915-585-3443

INVOICE NO.: 22101848
REPORT DATE: 04-04-98
REVIEWED BY: *WJ7*
PAGE : 1 OF 1

CLIENT GIANT REFINING
P.O. BOX 159
BLOOMFIELD, NM 87413

CLIENT SAMPLE ID : Sulfur Soil
SAMPLE TYPE : Solid
SAMPLED BY : Lynn Shelton
SUBMITTED BY : Lynn Shelton
SAMPLE SOURCE : --

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE : 03-23-98
SUBMITTAL DATE : 03-24-98
EXTRACTION DATE : --

TCIP Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Arsenic (TCIP)	<0.050	mg/L	0.050	03-30-98	SW846 7061	N. Munir
Barium (TCIP)	<5.0	mg/L	5.0	03-31-98	SW846 7080A	N. Munir
Cadmium (TCIP)	<0.25	mg/L	0.25	03-31-98	SW846 7130	N. Munir
Chromium (TCIP)	<0.50	mg/L	0.50	03-31-98	SW846 7190	N. Munir
Lead (TCIP)	<0.75	mg/L	0.75	03-31-98	SW846 7420	N. Munir
Mercury (TCIP)	<0.010	mg/L	0.010	04-02-98	SW846 7471A	N. Munir
Selenium (TCIP)	<0.050	mg/L	0.050	03-31-98	SW846 7741A	N. Munir
Silver (TCIP)	<0.25	mg/L	0.25	03-31-98	SW846 7760A	N. Munir

ANALYTICAL RESULTS REPORTED HEREIN ARE ONLY TO THE ANALYST'S BEST KNOWLEDGE AND BELIEF. THE ANALYST'S SIGNATURE IS REQUIRED ON ALL REPORTS.

M. Kelly
MANAGING DIRECTOR

(1) Copy to Client



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E-Mail: lab@traceanalysis.com

**ANALYTICAL RESULTS FOR
GIANT REFINING COMPANY - BLOOMFIELD**
Attention: Lynn Shelton
P. O. Box 159
Bloomfield, NM 87413

April 07, 1998
Receiving Date: 03/24/98
Sample Type: Soil
Project No: NA
Project Location: NA

Extraction Date: 03/30/98
Analysis Date: 03/31/98
Sampling Date: 03/23/98
Sample Condition: I & C
Sample Received by: VW
Project Name: NA

T94444/981039

TCLP VOLATILES (mg/L)	EPA LIMIT	Reporting Limit	Sulfur Soil	QC	RPD	%EA	%IA
Vinyl chloride	0.20	0.1	ND	116	10	80	116
1,1-Dichloroethene	0.70	0.1	ND	100	5	78	100
Methyl Ethyl Ketone	200.0	1.0	ND	110	20	85	110
Chloroform	6.00	0.1	ND	99	10	115	99
1,2-Dichloroethane	0.50	0.1	ND	98	10	95	98
Benzene	0.50	0.1	ND	101	10	105	101
Carbon Tetrachloride	0.50	0.1	0.05	96	5	113	96
Trichloroethene	0.50	0.1	ND	102	5	96	102
Tetrachloroethene	0.70	0.1	ND	102	5	78	102
Chlorobenzene	100.00	0.1	ND	99	10	85	99
1,4-Dichlorobenzene	7.50	0.1	ND	99	11	91	99

SURROGATES	% Recovery
Dibromofluoromethane	103
Toluene-d8	100
4-Bromofluorobenzene	99

ND = Not Detected

METHODS: EPA SW 846-1311, 8260.
CHEMIST: AG

Director, Dr. Blair Leftwich

4-7-98

DATE



TRACEANALYSIS, INC.

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E-Mail: tab@traceanalysis.com

ANALYTICAL RESULTS FOR

GIANT REFINING COMPANY - BLOOMFIELD

Attention: Lynn Shelton

P. O. Box 159

Bloomfield, NM 87413

Extraction Date: 03/27/98

Analysis Date: 04/01/98

Sampling Date: 03/23/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: NA

April 06, 1998
Receiving Date: 03/24/98
Sample Type: Soil
Project No: NA
Project Location: NA

T94444/981039

TCLP Semi-Volatiles (mg/L)	EPA Limit	Reporting Limit	Sulfur Soil	ac	RPD	%EA	%IA
Pyridine	5.0	0.05	ND	72	103*	48	90
1,4-Dichlorobenzene	7.5	0.05	ND	84	1	69	105
o-Cresol	200.0	0.05	ND	85	1	58	106
m,p-Cresol	200.0	0.05	ND	92	4	108	115
Hexachloroethane	3.0	0.05	ND	85	7	62	106
Nitrobenzene	2.0	0.05	ND	85	6	80	108
Hexachlorobutadiene	0.6	0.05	ND	84	9	67	105
2,4,6-Trichlorophenol	2.0	0.05	ND	88	0	78	110
2,4,5-Trichlorophenol	400.0	0.05	ND	89	1	84	111
2,4-Dinitrotoluene	0.13	0.05	ND	78	3	78	98
2,4-D	10.0	0.05	ND	90	4	83	113
Hexachlorobenzene	0.13	0.05	ND	66	2	56	83
2,4,5-TP	1.0	0.05	ND	67	9	58	84
Pentachlorophenol	100.0	0.05	ND	65	10	51	81

Surrogates

% RECOVERY

2-Fluorophenol	27
Phenol-d8	18
Nitrobenzene-d5	48
2-Fluorobiphenyl	48
2,4,6-Tribromophenol	60
Terphenyl-d14	56

*NOTE: RPD out of range <20%.

ND - Not Detected

Methods: EPA SW 846-1311, 8270.
CHEMIST: MB

Director, Dr. Blair Leftwich

4-6-98

DATE

Trace Analysis, Inc.

6701 Aberdeen Avenue, Ste. 9 Lubbock, Texas 79424
 Tel (806) 794 1296 Fax (806) 794 1298
 1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST
 LAB Order ID # _____

Company Name: **GIANT REFINING CO. - BLOOMFIELD** Phone #: (505) 632 8013
 Address: **P.O. Box 159 Bloomfield, NM 87413** Fax #: (505) 632 3911
 Contact Person: **LYNN SHELTON**

Invoice to: **Same**
 (If different from above)
 Project #: _____ Project Name: _____

Project Location: _____
 Sample Signature: *Lynn Shelton*

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX						DATE	TIME
				WATER	SOIL	AIR	SLUDGE	SOLID	HCL		
				PRESERVATIVE METHOD			SAMPLING				
				ICE	HNO3	NONE					
981085	SULFUR GUARDED BED - T	1	8oz				X	X	3/23/98	1020	
" 36	SULFUR GUARDED BED - M	1	1				X	X			
" 37	SULFUR GUARDED BED - B	1	1				X	X			
" 38	SULFUR GUARDED BED	2	1				X	X	1030		
" 39	SULFUR SOIL	1	1000ml	X			X	X	3/23/98	1100	
" 40	FILTERS	1	1000ml				X	X	3/23/98	1115	
" 41	NONP-E	3	40ml	X			X	X	3/23/98	1000AM	
" 42	TRIP BLANK	1	40ml	X							

LAB USE ONLY	REMARKS:
Intact <input checked="" type="checkbox"/> N	
Headspace <input checked="" type="checkbox"/> N	
Temp 14 °C	TRIP BLANK ONLY
Log-in Review _____	

Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____

Carrier # **WPS 17888 839 01 1001 5295**

Analysis Request: **NO HERBS OR PESTS**
TOTAL SULFUR
NORMS

Turn Around Time if different from standard
 Hold

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 E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR GIANT REFINING COMPANY

Attention: Lynn Shelton
 P. O. Box 159
 Bloomfield, NM 87413

PAGE 1 of 2

March 20, 1998
 Receiving Date: 03/11/98
 Sample Type: Water
 Project No: NA
 Project Location: NA
TA #: T93285/980903
FIELD CODE: Qtr Inj Well

Prep Date: 03/17/98
 Analysis Date: 03/17/98
 Sampling Date: 03/10/98
 Sample Condition: Intact & Cool
 Sample Received by: WW
 Project Name: NA

8260 Compounds	Reporting Limit	Concentration (ug/L)	QC	RPD	EA	IA
Dichlorodifluoromethane	1	ND				
Chloromethane	1	ND				
Vinyl chloride	2	ND	119			119
Bromomethane	5	ND				
Chloroethane	1	ND				
Trichlorofluoromethane	1	ND				
1,1-Dichloroethene	1	ND	110	5	115	110
Methylene chloride	5	ND				
trans-1,2-Dichloroethene	1	ND				
1,1-Dichloroethane	1	ND				
Chloroform	1	ND	96			96
1,2-Dichloroethane	1	ND				
1,1,1-Trichloroethane	1	ND				
Carbon Tetrachloride	1	ND				
Benzene	1	ND		5	111	
1,2-Dichloropropane	1	ND	102			102
Trichloroethene	1	ND		6	114	
cis-1,3-Dichloropropene	1	ND				
trans-1,3-Dichloropropene	1	ND				
Toluene	1	ND	107	7	114	107
1,1,2-Trichloroethane	1	ND				
2-chloroethyl Vinyl Ether	1	ND				
Dibromochloromethane	1	ND				
Tetrachloroethene	1	ND				
Chlorobenzene	1	ND	105	5	110	105
1,1,1,2-Tetrachloroethane	1	ND				
Ethylbenzene	1	ND	108			108
Bromoform	1	ND				
1,1,2,2-Tetrachloroethane	1	ND				
1,4-Dichlorobenzene	1	ND				
1,3-Dichlorobenzene	1	ND				
1,2-Dichlorobenzene	1	ND				

% Recovery

Dibromofluoromethane 98
 Toluene-d8 99
 4-Bromofluorobenzene 99

METHODS: EPA SW 846-5030, 8260.
 Chemist: AG



 Director, Dr. Blair Leftwich

3-20-98

 Date

TRACE ANALYSIS, INC.

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CLIENT GIANT REFINING COMPANY
P.O. BOX 159
BLOOMFIELD, NM 87413

E-Mail: lab@traceanalysis.com

SAMPLE NO. : 980903
INVOICE NO.: 22101796
REPORT DATE: 03-25-98
REVIEWED BY: *NA7*
PAGE : 1 OF 2

CLIENT SAMPLE ID : QTR INJ WELL
SAMPLE TYPE: Water
SAMPLED BY: LS
SUBMITTED BY: LS
SAMPLE SOURCE: --
ANALYST: K. Costa

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 03-10-98
SUBMITTAL DATE : 03-11-98
EXTRACTION DATE: --
ANALYSIS DATE .: 03-23-98

REMARKS -

Sample received with headspace.

Petroleum Contaminants by 8020A

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene	<0.20	ug/L	0.20
Toluene29	ug/L	0.20
Ethylbenzene	<0.20	ug/L	0.20
Total Xylenes	<u>1.9</u>	ug/L	0.20

ANALYTICAL RESULT(S) REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

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M. Hornbill
MANAGING DIRECTOR



ANALYTICAL REPORT

TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443
CLIENT GIANT REFINING COMPANY E-Mail: lab@traceanalysis.com
P.O. BOX 159
BLOOMFIELD, NM 87413

806•794•1296 FAX 806•794•1298
915•585•3443 FAX 915•585•4944
SAMPLE NO. : 980903
INVOICE NO.: 22101796
REPORT DATE: 03-25-98
REVIEWED BY: *MLJ*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)		
<u>Surrogate Information</u> -	<u>Percent Recovery</u>	<u>Range</u>
aaa Trifluorotoluene	100.0	77-120

ANALYTICAL REPORT

TRACE ANALYSIS, INC.

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 2500 Perry Avenue, Suite A El Paso, Texas 79922 888-588-3443 915-685-3443 FAX 915-685-3443

CLIENT GIANT REFINING COMPANY
 P.O. BOX 159
 BLOOMFIELD, NM 87413

SAMPLE NO. : 980903
INVOICE NO. : 22101796
REPORT DATE: 03-25-98
REVIEWED BY: [Signature]
PAGE : 1 OF 1

CLIENT SAMPLE ID : QTR INJ WELL
SAMPLE TYPE : Water
SAMPLED BY : LS
SUBMITTED BY : LS
SAMPLE SOURCE : --

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE : 03-10-98
SUBMITTAL DATE : 03-11-98
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Total Arsenic	0.014	mg/L	0.005	03-22-98	SM 3113B	N. Munir
Total Barium	<1.0	mg/L	1.0	03-17-98	SM 3111D	N. Munir
Total Cadmium	<0.05	mg/L	0.05	03-17-98	SM 3111B	N. Munir
Total Calcium	120	mg/L	1.0	03-17-98	SM 3111D	N. Munir
Total Chromium	<0.10	mg/L	0.10	03-17-98	SM 3111B	N. Munir
Total Lead	<0.15	mg/L	0.15	03-17-98	SM 3111B	N. Munir
Total Magnesium	39.	mg/L	1.0	03-17-98	SM 3111B	N. Munir
Total Mercury	<0.001	mg/L	0.001	03-16-98	SM 3112B	N. Munir
Total Potassium	27.	mg/L	1.0	03-17-98	SM 3111B	N. Munir
Total Selenium	<0.005	mg/L	0.005	03-17-98	SM 3113B	N. Munir
Total Silver	<0.002	mg/L	0.002	03-17-98	SM 3113B	N. Munir
Total Sodium	920	mg/L	1.0	03-17-98	SM 3111B	N. Munir

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

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M. Munir

TRACE ANALYSIS, INC.

ANALYTICAL REPORT

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CLIENT GIANT REFINING COMPANY
 P.O. BOX 159
 BLOOMFIELD, NM 87413

SAMPLE NO.: 980903
 INVOICE NO.: 22101796
 REPORT DATE: 03-25-98
 REVIEWED BY: *jm*
 PAGE : 1 OF 1

CLIENT SAMPLE ID : QTR INJ WELL
 SAMPLE TYPE: Water
 SAMPLED BY: LS
 SUBMITTED BY: LS
 SAMPLE SOURCE: --

AUTHORIZED BY : L. SHELTON
 CLIENT P.O. : --
 SAMPLE DATE ...: 03-10-98
 SUBMITTAL DATE : 03-11-98
 EXTRACTION DATE: --

Inorganic Non-Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date	Test Method	Analyst
Bicarbonate	330	mg/L	5.0	03-23-98	STD METH 2320 B	A. Donohue
Carbonate	<5.0	mg/L	5.0	03-23-98	STD METH 2320 B	A. Donohue
Chloride	1200	mg/L	5.0	03-20-98	EPA 300.0	A. Donohue
Electrical Conductivity	6700	umhos/cm		03-12-98	STD METH 2510 B	A. Donohue
pH	7.7	S.U.		03-11-98	STD METH 4500-H+	A. Donohue
Sulfate	400	mg/L	5.0	03-20-98	EPA 300.0	A. Donohue
Total Dissolved Solids	3500	mg/L	50.	03-16-98	STD METH 2540 C	A. Donohue

ANALYTICAL RESULTS REPORTED HEREIN APPLY ONLY TO THE SAMPLE(S) TESTED. FURTHERMORE, THIS REPORT CAN ONLY BE COPIED IN ITS ENTIRETY.

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M. J. ...

QUALITY CONTROL REPORT

QC IDENTIFIER: 31-032398-1
 REFERENCE NOTEBOOK :
 REFERENCE PAGE:

INSTRUMENT : HEWLETT PACKARD GC5890 PID/ELCD
 ANALYZED BY : K. Costa
 ANALYZED ON : 03-23-98

TEST DESCRIPTION ...: Petroleum Contaminants by 8020A

SAMPLES IN THIS RUN: 980903 980907

CALIBRATION CHECK -

PARAMETER	UNIT	TRUE VALUE	FOUND VALUE	%RECOVERY
Benzene	ug/L	10	9.57	95.7
Toluene	ug/L	10	9.71	97.1
Ethylbenzene	ug/L	10	9.73	97.3
Total Xylenes	ug/L	30	29.0	96.7
Benzene	ug/L	10	9.63	96.3
Toluene	ug/L	10	9.72	97.2
Ethylbenzene	ug/L	10	9.44	94.4
Total Xylenes	ug/L	30	28.6	95.3
Benzene	ug/L	10	9.70	97.0
Toluene	ug/L	10	9.95	99.5
Ethylbenzene	ug/L	10	9.81	98.1
Total Xylenes	ug/L	30	29.4	98.0

BLANK SPIKES

PARAMETER	UNIT	SAMPLE RESULT	SPIKE CONC.	[- SAMPLE AND SPIKE -]		% REC1	% REC2	RPD%
				RESULT 1	RESULT 2			
Benzene	ug/L	<0.20	10.	9.99		99.9		
Toluene	ug/L	<0.20	10.	10.3		103.0		
Ethylbenzene	ug/L	<0.20	10.	10.0		100.0		
Total Xylenes	ug/L	<0.20	30.	30.2		100.7		

METHOD BLANKS -

PARAMETER	UNIT	RESULT
Benzene	ug/L	<0.20
Toluene	ug/L	<0.20
Ethylbenzene	ug/L	<0.20
Total Xylenes	ug/L	<0.20

QUALITY CONTROL REPORT

QC IDENTIFIER: 31-032398-1
REFERENCE NOTEBOOK :
REFERENCE PAGE:

INSTRUMENT : HEWLETT PACKARD GC5890 PID/ELCD
ANALYZED BY : K. Costa
ANALYZED ON : 03-23-98

NOTE -

- 1) NC: Not Calculable because result is < 5 times the MDL
- 2) NP: Not Practical because sample result is 4 times or more greater than spike added.
- 3) Percent Recovery is:

$$\frac{\text{Sample+Spike Result} - \text{Sample Result}}{\text{Spike Amount}} \times 100$$

- 4) Relative Percent Difference (RPD) is:

$$\frac{\text{Sample Result} - \text{Replicate Result}}{(\text{Sample Result} + \text{Replicate Result})/2} \times 100$$

Trace Analysis, Inc.

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 Tel (806) 794 1296 Fax (806) 794 1298
 1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID # _____

ANALYSIS REQUEST

(Circle or Specify Method No.)

Company Name: **GIANT REFINING COMPANY** Phone #: **(505) 632 8013**
 Address: **P.O. BOX 159 BLOOMFIELD, NM 87413** Fax #: **(505) 632 3911**
 Contact Person: **LYNN SHELTON**
 Invoice to: _____
 (If different from above)
 Project #: _____ Project Name: _____

Project Location: _____

Sampler Signature: *[Signature]*

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD			SAMPLING		
				WATER	SOIL	AIR	SLUDGE	HCL	HNO3	ICE	NONE	DATE	TIME
080403	QTR INT WELL	8	LOT A	X				X	X	X		3/10/98	3:20

Relinquished by: *[Signature]* Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 Relinquished by: _____ Date: _____ Time: _____
 Received at Laboratory by: *[Signature]* Date: _____ Time: _____

Relinquished by: _____ Date: _____ Time: _____
 Received at Laboratory by: _____ Date: _____ Time: _____

- MTBE 8020/602
- BTEX 8020/602
- TPH
- PAH 8270
- Total Metals Ag As Ba Cd Cr Pb Hg Se
- TCLP Metals Ag As Ba Cd Cr Pb Hg Se
- TCLP Volatiles
- TCLP Semi Volatiles
- RCI
- GC/MS Vol. 8240/8260/624
- GC/MS Semi. Vol. 8270/625
- PCB's 8080/608
- Pest. 8080/608
- BOD, TSS, PH
- X GIANT PARAMETER LIST**
- Turn Around Time if different from standard
- Hold

LAB USE ONLY

Intact N
 Headspace N
 Temp _____
 Log-in Review _____

REMARKS:

2 vva's